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AEROSOL AGE

THE MAGAZINE OF PRESSURE PACKAGING

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IN THIS ISSUE:

CSMA Washington Meeting

Aerosols in Australia

Aerosols for Automotive Products

Sesoxane—A New Synergist

Shipping of Aerosols

TGA, APMA Meetings

New Containers

January 1957

LETHANE

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Chemicals for Industry

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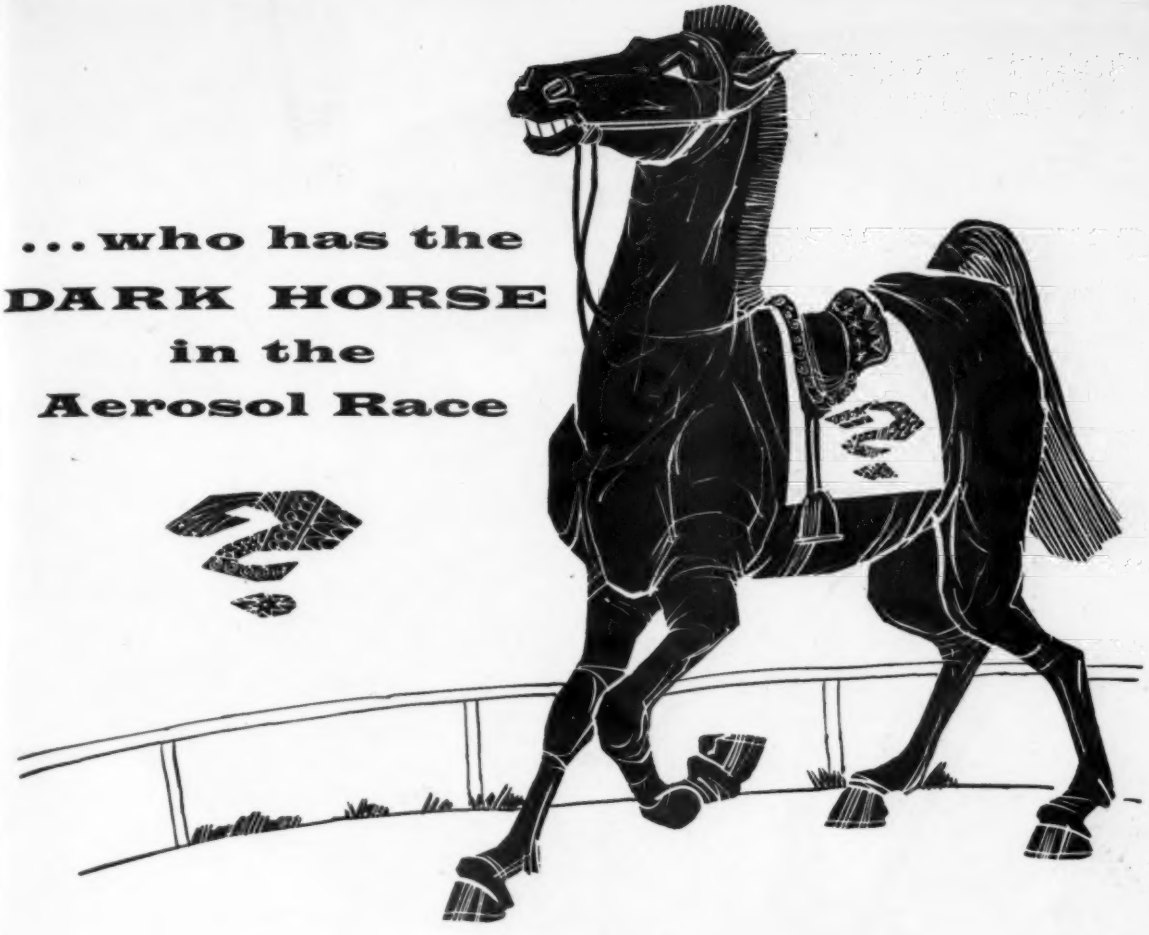
Representatives in principal foreign countries

...who has the DARK HORSE in the Aerosol Race



Somewhere in the pharmaceutical, cosmetic, food, chemical or specialty fields today, there are products that are not at all spectacular in their present form or package, but which if packaged as aerosols could become tomorrow's biggest sellers.

You may have such a "dark horse" in your present line.

Today, in G. Barr & Company's laboratories, a continuing, imaginative research program is being carried on to find and perfect these "dark horse" products for tomorrow's markets.

Through constant study of new propellants, new formulations and packaging techniques, we are in a position to offer a unique and comprehensive *Private Label aerosol packaging service*. Through the production of millions upon millions of successfully selling aerosol packages for clients in a wide variety of industries, we have gained experience that has established us as a leader in the pressure packaging field. Yet we market no product of our own.

If you have a product, now being marketed in a standard package, an undeveloped formula, or even the "germ of an idea," we will be pleased to help you ascertain whether it has an aerosol potential.

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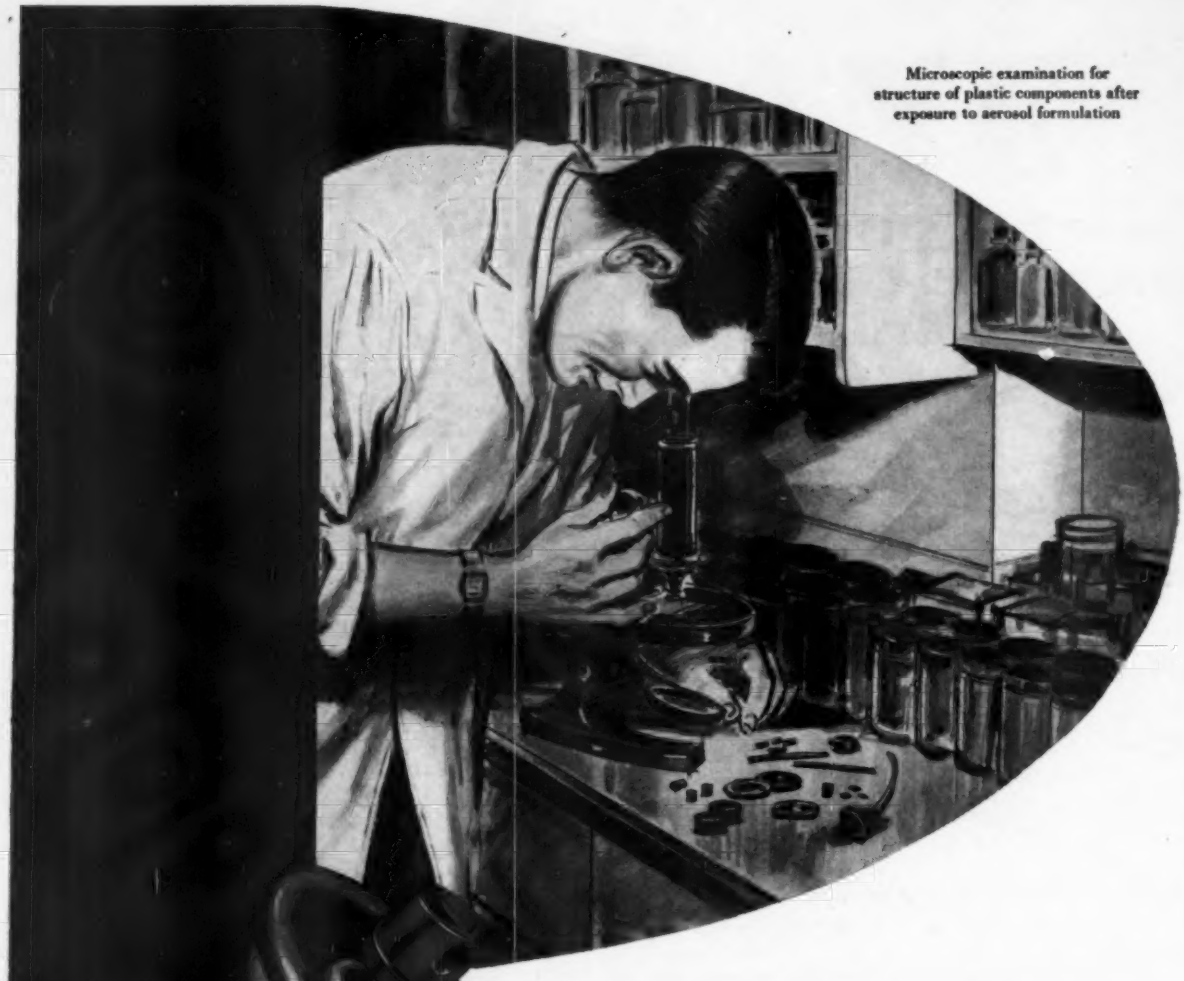

Microscopic examination for structure of plastic components after exposure to aerosol formulation

IMITATED... BUT NEVER DUPLICATED–

THE *Precision Valve*

From planning to commercial production, a new aerosol product requires infinite knowledge, effort and research. Almost every phase of human endeavor contributes its share to the completed product.

The final use, however, is dependent upon the proper valve, which is carefully designed, engineered, and manufactured to produce the proper dispersion of spray, mist or foam.

We at Precision are ready to help you, whether it be formula, package design, or production. Our facilities can be our contribution to the success of your business.

Whether it be a million and ten **or just ten**... Precision has or will develop the aerosol valve for your product. Our large quality control department assures you of the finest results along with the economy required for profitable sales.

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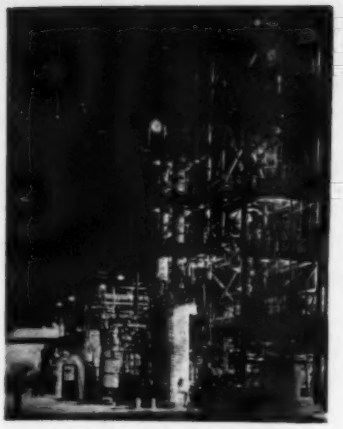

THIS MONTH'S COVER

A section of the new Isotron manufacturing facilities at the Calvert City, Kentucky, works of Pennsalt Chemicals. Now in production, this first of two Isotron units is prepared to make commercial shipments of Isotron 11 *and* 12 *in tank cars and trucks, ton containers and cylinders.*

As raw materials the new plant utilizes chlorine and hydrofluoric acid from other installations of the Calvert City works.

976395

The magazine of pressure packaging

AEROSOL AGE

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BRICKBATS and BOUQUETS from the MAILBAG

Since it has been published, we always read your review with great interest. However, we were surprised to read, in your November issue, that our insecticide product, "Neocide," appeared for the first time during last summer. We have sold that insecticide in aerosol form for three years. It is packed in France and manufactured entirely with French components.

We congratulate you for the wonderful appearance of your review, and for the services it renders.

P. Appell
INSECTICIDES GEIGY
Paris, France

We of AEROSOL AGE *admit that we are not as well informed on the French aerosol market as we might be. Our correspondent, Dr. Tom Clark, has the disadvantage of operating from Switzerland, and his information is therefore occasionally incomplete.*

Will you please let us have the addresses of the various firms in your country which are marketing whipped cream in aerosol form? Moreover, we would like to know the size of cans being used and the retail prices of these products.

Robert Danon
CROMASIL LTDA.
Rio de Janeiro, Brazil

We have forwarded the desired information to Mr. Danon.

I have read with much interest all the articles in your first few issues of *Aerosol Age* and my opinion is that your magazine is excellent. Sincere congratulations on your efforts and your enterprise. As for our organization, we are working vigorously to be able to start filling aerosols within the next few months.

There are already two manufacturers of propellants in Argentina, and by February or March a third will begin production. Annual output is estimated at 1,600 tons of propellants 11 and 12, of which approximately sixty percent will go into aerosols. We have a plant which will begin the manufacture of seamless tin containers (Crown type). There are also two firms which are considering producing valves in Argentina. Prices on valves, containers and propellants are, understandably, somewhat higher than in the United States, but domestically produced supplies for aerosol manufacture should be less expensive than imported items after adding transportation and duty.

In spite of the relatively high cost of finished aerosols to the Argentine consumer, there is no doubt of the increasing enthusiasm for aerosol products, and the

(*Turn to Page* 59)

In the Spotlight this month

• **CSMA Meeting in Washington** . . . Tremendous untouched market seen for aerosols at best-attended meeting of CSMA. DuPont and General Chemical reports indicate spiraling growth of industry. A new method of analysis of volatile aerosol constitutents is described, and chlorothene, strobane, and fragrances for aerosols are discussed in separate papers. For the complete story see page 10.

• **Aerosols in Australia** . . . Pressurized packages boom "Down Under," with American and Australian companies bringing out new and improved products all the time. An exclusive progress report appears on page 18.

• **Pressurized Packages for Automotive Use** . . . A further relatively untapped market for aerosols is described in a paper originally presented to the CSMA convention, on page 21.

• **A New Synergist** . . . Shulton, a major producer of men's and women's cosmetic and toilet articles, brings out a new synergist for pyrethrum and allethrin insecticides. Story plus performance charts on page 22.

• **Shipping of Aerosols** . . . ICC regulations, long a bugaboo to the prospective aerosol shipper, are defined and translated on page 25.

• **Cosmetic Chemists, TGA, and APMA meet in New York** . . . Three associations, important to future aerosol markets, hold annual meetings. Page 27.

• **New Containers** . . . Containers highlight new products introduced at CSMA meeting. See page 29.

New General Electric leak detector checks each can quickly, automatically, safely

Helps assure long shelf life, improves quality control

Continuous production line testing of pressurized cans is now possible with General Electric's new "fixed-head" leak detector. Designed for use by manufacturers of insecticides, hair lacquers, paints, plastic sprays, shave lathers, shampoos, etc., the new unit accurately leak-checks every can on the line. This 100% leak test helps protect product quality throughout its shelf life and complaints and returns caused by deterioration on dealer's shelves can be sizeably reduced.

Automatic rejection of faulty cans can be initiated by the new system. Manual testing of cans is eliminated and this new method is more sensitive and much faster than conventional "hot-water" methods.

Tolerance limits for quality control can be set and maintained through use of General Electric's new "leak-standard." Experience with your product will show the size leak which is permissible to maintain product quality for the desired period of time. The "leak-standard" makes possible quantitative measurement of the leak and proper calibration of the detector to predetermined limits for precise quality control.

For further information about how to apply this new leak detection system, call your nearest General Electric Apparatus Sales Office or write to Section 585-56, General Electric Company, Schenectady 5, New York.

ACCURATE LEAK DETECTION MEANS PROFITS

GENERAL ELECTRIC

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A NEW PRENTISS PRODUCT

Meelium

THE IMPROVED, LOW-COST CHEMICAL ODOR NEUTRALIZER

Meelium is a *true deodorant*—not just a masking agent or olfactory desensitizer. This quick-acting chemical neutralizes odor-producing elements... destroys both organic and inorganic odors usually associated with animals, human beings, food, etc.

A room sprayed with Meelium solution for three to five seconds is effectively deodorized. Since it is odorless, it is suggested that a small percentage of perfume oil be added to enhance consumer appeal. Meelium is approximately equal to Pyrethrins in toxicity, and in suggested concentrations is chemically stable and non-corrosive.

Meelium is supplied to the aerosol industry as a 60% active deodorant. Available immediately in 5-gallon drums (35 lb. net), 30-gallon drums (225 lb. net) and 55-gallon drums (410 lb. net).

Write today for complete details on economical formulations and contract price savings.

TRY THESE PRENTOX PYRONYL AND PYRETHRUM PEST-TESTED PRODUCTS

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EDITORIALS

Aerosol Publicity Program . . .

The long needed CSMA aerosol publicity campaign is at last an actual fact. Money and pledges are coming in and the actual implementation of the campaign is in the real planning stage. It is proceeding with no more than the normal amount of reticence from prospective contributors, and the committee planners are optimistic about meeting both the monetary and the stated publicity goals of the campaign.

There can be little argument about the need for such a program. In fact, a number of reports to the CSMA convention in Washington, all of which indicated a market potential for aerosol products of staggering proportions, have served to give a good beginning push to the committee's drive for contributions.

These reports attest irrefutably to the need for an intelligent program of publicity for aerosols as a separate and distinct way to package and to buy. Far too small a percentage of the general public is really aware of any difference between aerosols and any other type package, and considerably too few manufacturers are aware of the possibilities of pressurized packaging for their own products. Since the target for such a campaign looms so large, however, the problem will be not so much what to aim at, but rather which weapons might best be employed.

From our editorial vantage point we would like to suggest to the committee two relatively inexpensive projects which would go far toward meeting the group's objectives. Either or both of these may already have been considered by the committee, but we feel that these particular projects would be of noteworthy value and at the same time of limited cost:

1. Organization of a pool of speakers to deal with aerosol subjects at national and regional trade meetings and conventions.

Last month in New York, three national groups (The American Pharmaceutical Manufacturers' Association, The Toilet Goods Association, and the Society of Cosmetic Chemists) held conventions. Each of these associations deals in commodities which, according to the surveys, will make up important portions of the future aerosol market. Yet among the more than a score of papers presented, there was only one dealing directly with aerosols, plus one or two others referring only vaguely to them. The aerosol industry somehow missed the boat here, for these associations are made up of some of the top executives, policy makers, chemists, etc. in fields essential to the continued growth of the aerosol industry.

A pool of speakers, drawn from among the many experts in the various fields of aerosol packaging, could be organized at minimum cost and the speakers carefully distributed among the close to fifty such conventions of interest to the industry. They could serve to make vast, untouched manufacturing and marketing sources increasingly aware of the aerosol potential.

2. An aerosol exhibition, to be conducted in three or four of the major cities over the country.

Here again, moderation would have to be the key word. In New York, for instance, a smaller, more manageable hotel or exhibition hall might well be preferable to trying to swing a major show in a place the size of the new Coliseum. Such an exhibition would give custom fillers a chance to display their product types, and propellant, valve, container, and component material

(*Turn to Page 55*)

600,000,000 Aerosol Units by 1960 Forecast at Washington Convention of

THE year 1960 will see production of 600 million aerosol units, predicted Lee D. Callens, General Chemical Division of Allied Chemical Dye Corp., New York at the 43rd annual meeting of the Chemical Specialties Manufacturers Association at Washington's Mayflower Hotel Dec. 3-5. Mr. Callens made the prediction in a paper prepared by himself and John Griswold, also of General Chemical, and delivered before the Aerosol Division of the CSMA. The paper was entitled "Aqueous Aerosols — Opportunities and Problems."

Mr. Callens arrived at his figure by establishing a curve on the basis of a predicted total for 1956 of 300 million units, and extending the curve on its present rate of rise to 1960. He pointed out that last year only four products, hair sprays, shave lathers, space insecticides, and space deodorants, constituted 72% of the aerosol market—or 170 million units. "It is our belief that by the end of 1960 the average market saturation of these products will have increased from the 1955 figures to an average of 80%, or to approximately 400 million units. Other existing products now totalling 70 million will certainly increase to 100 million, which gives us a total of 500 million aerosols."

"It is our modest speculation that new products, and in particular new aqueous aerosol products such as personal deodorants, emulsion waxes, shampoos, furniture polish, auto polish, and hand lotions and creams. will certainly constitute not less than the 100 million missing units," he declared.

Mr. Callens then went on to analyze the rising market based on household insecticides, which have "the most conservative growth among the major aerosol products." He attributed much of the total growth of household insecticide sales directly to the aerosol package, drawing from this a similar concurrent market effect in the other three major categories, room deodorants, shave lath-

Aerosol Marketers Missing 85% of Potential Sales, DuPont Survey of the Consumer Market Discloses

AEROSOL marketers have missed as much as 85% of the market potential in many product categories because of poor merchandising, Ralph A. Crane, market analysis manager of the "Kinetic" Chemicals Division of E. I. Du Pont de Nemours & Co., Wilmington, told a joint meeting of the Aerosol and Automotive Divisions of CSMA. Speaking to several hundred aerosol marketers, loaders, and suppliers, he said that these estimates of sales shortcomings were based on Du Pont's new "consumer awareness" study.

He declared that not only has the industry failed to capitalize on selling consumers the inherent advantages of a push-button, self-spraying package, but in many cases it has even neglected to tell the consumer that such products are available. Mr. Crane based his remarks on a private survey for Du Pont by Daniel Starch & Staff, New York, of a cross-sample of 1824 households, in each of which the housewife was interviewed.

"The interviews were made during November 1956 . . . Because a national probability sample was used to select the households, the findings can be expected to represent approximately 30 million households out of the approximately 49 million in the country."

In the survey this year, there was time to gather data on only one personal product (personal deodorants and antiperspirants), one pharmaceutical (burn preparations), and one household category (paints, enamels, and lacquers). In each case the objectives were to develop information on: (1) the extent of use of the selected products in all forms of packaging and reasons for non-use in forms now available; (2) distribution outlets through which such products are purchased; (3) consumer satisfaction or dissatisfaction with existing products; (4) knowledge and use of these products in aerosol form; (5) attitude towards these products in aerosol form versus the products in their usual form; and (6) reasons for non-use of products in aerosol form.

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C.S. M.A.

1. John Stoddard, Prentiss; Walter Dykstra. U.S. Food & Wildlife; and Robt. Sharp, Prentiss.

2. Leonard Baer and Douglas Atlas, G. Barr & Co.; D. S. Welshon, Ill. Tool Works; and J. N. Conover, Sonneborn.

3. Edmund Bennett, Jr., Products Mfg.; Al Pero and Edmund Bennett Sr., Fluid; Philip Meshberg, Emson Research.

4. Wm. Brown, Sterling Seal; Matt Phelan and Paul Sperry D & O; and H. Steadman, Liquid Glaze.

5. R. McGhie, Colgate; Don Menhenett, Eveready; and John Marana, Western Filling.

6. Mrs. and Mr. Dean M. Rockwell and Richard F. Burke, Tube Manifold.

7. Mal May and Joseph M. Rait, Allied Professional; Sig Was, VCA; and W. H. Reed, Aerosol Process.

8. George Proulx, Conn. Chemicals of Canada; A. H. Gee, Foster D. Snell; and A. O. Samuels, Conn. Chem. Research.

9. S. J. Goldberg, Aerosol Research Co.; Robert Foresman, consultant; and Pete Clapp, Western Filling.

10. Jean Baer, John Haslip, Wiley Pickett, R. Villson, and Frank Lucard, all of Pennsalt.

Dr. F. E. Medon, Rowland W. King, James A. Bergman, and James D. Russon, all of General Chemical; H. Bruce Hagler, Associated Brands; Walter Beard, Risdon Valve; L. Hall and E. G. Young, DuPont.

ers, and hair sprays. From this he concluded, "When a product is satisfactorily packaged, in aerosol form, and is properly advertised and merchandised, the total market increases."

Assuming the promotion of a satisfactory water-based aerosol, Messrs. Callens and Griswold made the following predictions on the 1960 market:

"Shampoo sales for 1960 with aqueous aerosols should approximate 170 million dollars; with an estimated 50 million of that being retailed in the form of aerosols. This is a long way from the total 1950 shampoo sales of 80 million dollars.

"Furniture polish and cleaners sales in aerosols should total approximately 12 million out of a total 1960 market of 45 million dollars.

"The same is true of auto polish and cleaners; out of an estimated total 1960 market of 64 million dollars, 20 million should be sold in aerosol form.

"Hand lotions and creams sales for 1960 would be similar; a total market of 60 million dollars is projected for 1960, 20 million dollars being sold in aerosol form.

"Retail sales of floor waxes by 1960 should be 118 million dollars if a satisfactory aerosol is introduced. Of this total 118 million dollars sales, approximately 35 million dollars would be in aerosol form.

Mr. Callens said that the total for these suggested products "will be above the needed 100 million mark, to provide the estimated 600 million units in 1960."

Mr. Callens' predictions came after a general discussion on aqueous aerosols. He divided the formulations into four types: propellant insoluble, emulsion, solvent, and dispersion types.

As advantages of the first of these, which he described as having propellant and aqueous active ingredients mutually insoluble so they layer out in the aeosol container, he listed the following:

1. The product is relatively inexpensive in that very little propellant is required.
2. It provides a means of dispensing water soluble materials.
3. It allows the replacement of various relatively costly organic solvents by water.

As a possible disadvantage, he had this to say: "Even in the hands of one familiar with these units, there exists the possibility of the propellant being lost by improper operation."

He described emulsions, the second category, as a means of obtaining stable suspensions of immiscible materials. "Temporary emulsions must be shaken, and perhaps frequently, to avoid variable concentration of active ingredients during spraying from full to empty container."

As advantages, he listed; in addition to the advantages of propellant insoluble aerosols, diminishment of possibility of propellant loss. He noted as a disadvantage that in an emulsion the propellant distributes between both phases.

In solvent aqueous aerosols, Mr. Callens, said, "sufficient propellant can be taken into water solution by the addition of a cosolvent such as alcohol. The solubility of the propellant depends upon the cosolvent and the amount of it present. As examples, we may talk of non-foaming glass cleaners or some aqueous anti-perspirants.

"This type possesses the three advantages of the two previous types: it is inexpensive, it provides a means of dispersing water soluble active components, and it allows the replacement of organic solvents by water. There are additional advantages: no agitation is required before use, there is no possibility of losing the propellant phase. There are disadvantages: formulations containing high percentages of alcohol are flammable, and of course, the use of a cosolvent for solubilizing a fluorinated chlorinated hydrocarbon is more costly than the use of water. Lastly, some of the propellant vaporizes in the can during spraying. As the can becomes empty, the concentration of propellant falls, and the pressure is correspondingly lower. This effect sets a lower limit on the amount of propellant to be used."

In the dispersion type aqueous aerosol, on which he said General Chemical has been working, mixtures of certain surface active agents and water will take up propellants to form a dispersion. "These products are neither true solutions, nor emulsions, but are somewhere in between. The viscosities are low. The liquids range from clear to milky, depending upon composition. The amount of propellant required is low, being in the range of 3 to 5%.

"In these dispersions pressures may be adjusted to as low as 12 pounds

J. P. Zamata, Powr-Pak; Edward Zellar, Mojonnier Associates; Kenneth Nash and A. C. Weed, Olin Mathieson; George Kerbey, Fairfield Chemical; and H. D. Fine and C. F. Kessler, Plasti-Kote.

per square inch by adjusting the amounts and types of propellant and surface active agent. When the aerosol is continually discharged, the pressure at the end will have fallen by only one or two pounds per square inch."

Mr. Callens reported that this type product has all five advantages mentioned for the solvent aqueous aerosol, plus two more. He declared that "a surface active agent as cosolvent is less costly than an organic solvent and avoids flammability" and "the product dispersed will be of constant composition."

As disadvantages, he listed corrosion and the inability of certain pharmaceuticals to permit the use of any inhibitor used in normal containers for this type of product. As possible solutions to this latter problem he was optimistic about glass and plastic containers.

Analysis of Volatile Components of Aerosols By Gas-Liquid Phase Chromatography

A NEW technique for achieving a high level of product uniformity was described in a paper by Morris J. Root, technical director, and M. J. Maury, chief chemist, of G. Barr & Co., Chicago. The aerosol technological advance consists of gas-liquid phase chromatography by means of a chromatograph, an electronic instrument that separates, identifies, and measures the readily vaporizable components of an aerosol product. This technique was adopted by Messrs. Root and Maury to enable precise and rapid analysis of all the volatile components of aerosol products. The chromatograph was first used in biological science for determining fatty acid in human tissue.

The authors reported that the technique enables more exacting control than previously possible. It facilitates identification and analysis of propellants and propellant mixtures, checking of volatile components for contamination, and detection of air in liquid and gaseous phases. Prior to chromatography in aerosol technology, such analysis was impractical due to the highly varying boiling points of the volatile constituents.

Mr. Root described operation of the chromatograph, as follows:

1. A sample of aerosol preparation in gas or liquid form, at either atmospheric or reduced pressure, is piped into the chromatograph.
2. The mixture enters a coiled copper column, filled with a carrier of solid material.
3. Partition occurs as the volatile components are carried through the column by helium.
4. Separately, at intervals, the components emerge from the column and are recorded electronically on a chart.
5. The time required for each component to appear on the chart permits qualitative analysis.
6. Quantitative analysis is performed by measuring the area under each component's curve on the chart.

Mr. Root said that gas-liquid chromatography, as outlined above, takes only a few minutes, with an accuracy of plus or minus a few tenths of one per cent.

He described the advantages of this method over analytical procedures. Mass spectrometry, for example, common for analyzing mixtures of aerosol propellants, becomes impractical when other volatile solvents are present. Analysis by a fractionating column, he added, would be difficult or impossible, because of the great disparity in boiling points of some of the components, and the closeness of others.

He said that analysis of the volatile components presents such complications because they range in boiling points from as low as —21.7°F. for the propellants, to over 100° for some of the solvents.

"It was A. T. James and S. P. Martin in 1951 who first showed the way to use gas-liquid partition chromatography for the analysis and separation of fatty acids from formic to dodecanoic. Unaware as they were even at that recent date of the problems involved in analyzing the volatile components in an aerosol product, their solution to this problem could not have been more complete and successful."

"Gas-liquid partition chromatography for the first time permits taking a sample of .01 to .2 ml. liquid or .05 to 25 ml. gas at atmospheric or reduced pressures, separating it into its components, recording the qualitative and quantitative values and completing the operation in a matter of

minutes with an accuracy of plus or minus a few tenths of one per cent. Furthermore, each component can be recovered for infra-red spectrophotometric analysis or mass spectrometry."

A Review of the Activities of The Aerosol Scientific Committee

WILLIAM E. BAULIEU of Bridgeport Brass Co., Bridgeport, Conn., chairman of the Aerosol Scientific Committee, reviewed the activities of this important CSMA committee. He listed the general objectives of the Aerosol Scientific Committee as follows: First, to advise the Aerosol Division and Association on scientific matters concerning pressurized products. Second, to work out standard methods to be used in the evaluation of aerosol products. Third, to disseminate to the membership any information of a scientific nature that pertains to pressurized products. Fourth, to initiate and undertake work of a scientific nature that this committee believes to be of benefit to the aerosol industry. The committee operates through thirteen subcommittees. The total number of persons serving on the committee and its subcommittees is eighty-six. Among the subcommittees are the following:

Protective Coating Standard Methods subcommittee, chairman, David Tillotson, Pennsylvania Salt Manufacturing Co., recently developed a simple method for determining the solids content of aerosol coatings. Current activities include work on the development of a method to determine spray pattern of aerosols.

Insecticide Standard Methods subcommittee, Montfort Johnsen, Peterson Filling and Packaging, chairman. A tentative method for the determination of pressure in space insecticides and room deodorants developed by this committee was approved earlier in the year by the Scientific Committee and the Administrative Committee of the Aerosol Division. A tentative method for the determination of volatile and non-volatile ratios of pressurized products (densimetric) developed by this committee has also been approved. A method for the determination of volatile and non-volatile ratios of aerosol products (vacuum distillation) is in process of preparation and is to be voted on at the next meeting of the Scientific Committee. A method for determining the seepage rate for aerosol insecticides and room deodorants is now under consideration. Action on the method will be requested at the next meeting of the Scientific Committee. Current work of this subcommittee includes investigation of a new, so called "Paper Bag" method for the determination of volatile and non-volatile ratios of constituents of insecticides and room deodorants.

Filler Safety subcommittee, Frederick C. Lodes, Lodes Aerosol Consultants Inc., New York, chairman, is in charge of making recommendations for precautions that should be observed by those who are filling low pressurized products either in the laboratory or in production. Previous recommendations are currently being reviewed by the committee.

Safe Fill subcommittee, John Buchanan, Continental Can Co., chairman, has been responsible for the development of two densimetric methods of determining the specific gravity of aerosol formulations. Through the use of these methods it is possible to determine the percentage of fill within a container. Earlier this year a recommendation of the subcommittee was approved to set a minimum of 7½" head space in aerosol containers at 130°F.

Post Office subcommittee, chairman, Walter C. Beard, Risdon Manufacturing Co., maintains close contact with the postal department in connection with requirements for shipping aerosol containers by mail.

Public Regulations subcommittee, of which Earl Graham, Crown Cork, is chairman works very closely with the U. S. Bureau of Explosives in reference to various shipping regulations. Work is currently going on in assisting and consulting with the Bureau in their program of simplification of existing regulations.

Personal Products subcommittee, Victor Di Giacomo, Givaudan-Delawanna, chairman, has as one of its current projects research on a method for determination of foam viscosity in aerosol film type products. Work is proceeding in the committee to develop standard formulations for aerosol cosmetics, and it has also been proposed that the committee study the compatibility of cosmetic materials with aerosol propellants.

Particle Size Determination subcommittee, Frank W. Blodgett, "Kinetic" Chemicals Division, E. I. Du Pont de Nemours & Co., chairman, is working on a means for determining particle size of space spray products which has resulted in a tentative method having been drawn up and circulated to the Aerosol Scientific Committee. It is expected that action will be taken on the proposed method at the next meeting of the committee. Work has also progressed on the development of a method that would be suitable for determining particle size for residual spray products.

Pressure Determination subcommittee, Peter Clapp, Western Filling Corporation, chairman, has been working on a method for determining pressures. The text of a tentative method has been distributed to the Scientific Committee and it is anticipated that action on the method will be taken at the next meeting of the committee.

Glass Aerosol subcommittee, chairman, Walter Beard, Risdon Manufacturing Co., has three project committees working on assigned problems. First, a method for determining pressure in glass aerosol containers, which has been adopted by the Association. Second, the development of a standard drop test. This method is in its final stages and will be ready for circulation shortly. Third, the development of a method of pre-testing glass aerosols. A tentative inspection procedure for glass aerosols has been circulated to the Scientific Committee and action will be taken at the next

meeting of the Aerosol Scientific Committee.

Definitions and Terms as Applied to Aerosol subcommittee, chairman, Dr. Ralph Downing, "Kinetic" Chemicals Division, E. I. Du Pont de Nemours & Co. has developed a glossary of terms for use in the aerosol industry.

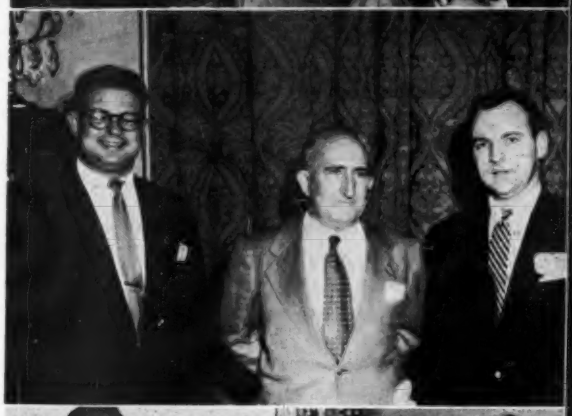
Unofficial Rules and Regulations subcommittee, chairman, R. V. Sharpless, Gulf Research & Development Co., has set up rules governing membership on the Aerosol Scientific Committee and rules and regulations governing the committee's operations.

Subcommittee to Study Valve Cup Clinch Measurements and Effects, chairman, Herbert Umstead, Crown Can Division, Crown Cork and Seal Co., is working on methods for checking clinches and establishing the effects of various variables on sealing efficiency.

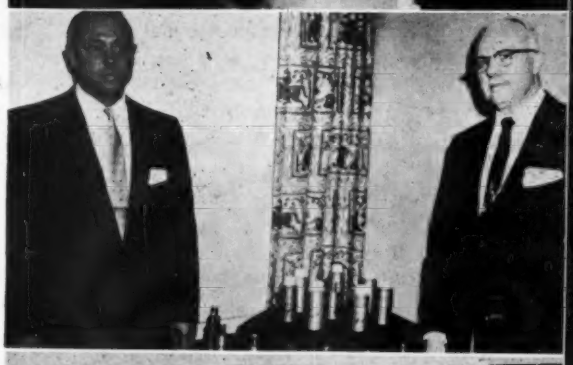
Optimum Particle Size For Insecticidal Aerosols

JOHN C. McCOOL, B. F. Goodrich Co. Research Center, Brecksville, Ohio, gave a paper on the "Insecticidal Performance of Strobane Aerosols as a Function of Particle Size and Formulation of Sprays." The company's work led it to the conclusion that an optimum particle size distribution exists for insecticidal aerosols which is clearly affected by the selection of the valve with respect to its geometry. In the case of "strobane" insecticidal aerosols, this distribution appears to be characterized by an MMD value of about 17 microns. This is approximately the value determined for the OTA. The valve factor seems to be of relatively greater significance than that of formulation changes within reasonable limits. The method of measuring particle sizes used in this work, it was observed, represents closely the tentative procedure drawn up by the CSMA subcommittee on particle size analysis of aerosols. Its use is suggested as a convenient method of providing technical information with which to assist in developing formulations having optimum insecticidal performance.

N. J. Gothard, Sinclair Chemicals, Paul Torpin, McLaughlin Gormley King Co., and Ted Welsh. Gulf Development.



Joseph C. Pizzuro, Precision; W. E. Baulicu, Bridgeport Brass; and Gordon C. Gilray, Precision Valve.



Al Upson and John Mills, Hunter Douglas Division of Bridgeport Brass.

Alvin Gaines and Stanley Goldberg, Aerosol Research; H. Locke, Reefer Galler; and H. R. Shepherd, Aerosol Techniques.

C. F. Gunther and M. J. Heffernan, Du Pont.

New Clorinated Solvent, "Chlorothene" Called Promising For Aerosol Use

IN a joint meeting of the Aerosol and Automotive Division on December 5, J. W. Barber, Dow Chemical Co., Midland, Michigan discussed "The Versatility of Chlorothene in Aerosols." Chlorothene is a new halocarbon which found its first application as a replacement for carbon tetrachloride in general cold cleaning applications. Dow technicians lean to the view that its second field may well be in the aerosol industry. Mr. Barber indicated that "Chlorothene has good solvent activity and yet gives few valving problems and may be considered for cleaning and treating applications involving all fabrics and many of the common surfaces found in the home and industry. As a pressure depressant, Chlorothene will conserve propellant 12 and give lower pressures at high temperatures, increasing the safety factor of the formulation. In formulations containing a separate water phase, Chlorothene is not indicated; however, Chlorothene will tolerate considerable dissolved water without can corrosion."

The Dow investigators believe that Chlorothene will be "very helpful" in reducing formulation costs in insecticidal and non-personal deodorant and reodorant formulations. Chlorothene in concentrations of from 20 to 50% by weight of the total can be considered.

In a recent study of a new deodorant composition, Chlorothene was required to produce the best formulation. In aerosol formulations designed for cleaning and spotting fabrics and cleaning surfaces, Chlorothene is definitely indicated. Finally, recent tests in cooperation with G. Barr & Co. have indicated that from 25-30% Chlorothene may be used in hair lacquer formulations without increasing the toxic hazard over that now encountered with formulations containing propellant 11 and 12. Mr. Barber listed the following physical properties for Chlorothene:

Boiling Range—760 mmHg. initial to dry point	162-191°F.
Specific Gravity - 25/25°C.	1.312-1.321
Pounds per Gallon	11
Flash Point	None
Fire Point	None
Viscosity - 25°C. centipoises	0.79
Vapor Pressure @ 70°F. mmHg.	110
Color APHA (Pt-Co Scale)	Maximum 15

"Chlorothene is one of the least toxic of the non-flammable solvents;

Tri + tetrachloroethylene mixt ? C.L.G.

Report of Aerosol Division Chairman

Charles E. Beach
John C. Stalfort & Sons

WE all agree, I believe, that any organization is only as strong as its members. Most of us belong to and have something to do with corporations. We know the value of team work in a corporation. Certainly our management has talked to us in this respect and has promoted this thought.

In this industry we must be strong in membership and in activity. I believe you will agree that our association and our division has taken a very active part, and has accomplished, over the years, many, many things that have been of benefit to all of us personally as well as for the company we represent. We cannot stop there. The industry is growing by leaps and bounds and we must keep pace with it. We must talk to our associates, suppliers, competitors, and customers to persuade them to be a part of this whole picture as it pertains to aerosols. That should not be too difficult because of one big factor; they are interested or they would not be in the field in the first place. I believe it is a job we must do—those of us who are members.

You may ask yourself: "What does this association and this aerosol division offer me and my company, and those people I contact?"

I believe it has already been established that today, as in the past, governmental agencies have come to this association (and are still coming weekly) to ask what we recommend as far as a particular regulation is concerned. It may be that the regulation has been passed and needs amending, or a new one being proposed, one by which these government agencies want to govern a particular aspect of our industry. At any rate, they want guidance, and it is to us they look for this guidance. Isn't this good—rather than have them pass regulations to govern and control us on something they may know nothing about?

Your chairman recently appointed a new membership committee, and we are looking for much new activity from these men. Harvey Tull of Crown Cork & Seal Co. is its chairman.

Getting back to what we have to offer. The vice-chairman of the Administrative Committee each year is responsible for the program. Every attempt is made to acquire interesting papers that cover all phases of our industry, such as new products, new methods, research, forecasts, merchandising, insurance, (component parts such as glass, tin, valves, propellants) —any phase of our industry that is of interest to you. This committee is most interested in receiving your suggestions and will be willing to have any subject explored. The Administrative Committee is also glad to hear your thoughts, and opinions are invited on any subject that is before the committee for discussion. In that way a better decision can be arrived at, one which will satisfy the majority and one in the best interests of the industry.

William Baulieu, chairman of the Scientific Committee, in his address will list some of the projects that are before his committee and sub-committees. This will better inform you what work is being done.

The Publicity Committee has been working tirelessly for the past several months to arrive at a plan that is practical, economical, and still the most effective. Its two main objectives will be:

1. To promote the use of aerosols and the aerosol principle.
2. To offset the adverse newspaper publicity that occurs from time to time throughout the country.

We ask you to help make us bigger and stronger in the job I believe we have to do to keep pace.

Before Jan. 1, all committees in this division will be reworked and approval asked of the president. He will then appoint these committees. Please send in to me or to the CSMA the names of those persons of your company, listing either the man's qualifications or for what, in your opinion, he is best qualified. Bear in mind, he must be a willing worker.

500 parts per million in air can be tolerated. It exhibits good solvency for many materials, and this property has proved to be particularly useful in the preparation of aerosol concentrates."

Solubility of Various Materials in Chlorothene.

Material	at 70°F. Gms. dissolved per 100 grams of Chlorothene
DDT	41
Methoxychlor	67
Chlordane	350
Lindane	17.6
Pentachlorophenol	5.5
S-Napthol	1.5
Ethylene Glycol Ethyl Ether	100
O-Dichlorobenzene	100
p-Dichlorobenzene	72
Stoddard Solvent	100
Xylol	100
Mineral Hydrocarbon	100
Isopropyl Alcohol 99%	100
Perfume & Essential Oils	100
Ethylene Glycol	1.0
Propylene Glycol	1.0
Triethylene Glycol	6.5

Chlorothene is an excellent vapor pressure depresssant for propellant 12. Mr. Barber outlined a quick method of determining what combination of propellants 11 and 12 will be required with a given amount of Chlorothene to produce a desired pressure.

In testing valving performance, the Dow investigators did not encounter any standard cup mounted valve which failed to function due to the presence of Chlorothene in the aerosol formulation. With the eyelet type valve of brass-nylon, losses range between 0.6 grams per year with the Buna-gasket up to 2 grams per year with the Neoprene 759 gasket.

In corrosion tests, none of the metals tested were seriously corroded by Chlorothene containing 0.10% of water (the tests were made at 70°F., the temperature encountered in most conditions of long storage). The metal most seriously affected was SAE 1010 iron, which was corroded only very slightly. Metals tested included aluminum, copper, brass, iron, monel, stainless steel and zinc.

When exposed to a 50-50 mixture of water and Chlorothene (1/3 in Chlorothene—1/3 in water—1/3 in air) two metals were definitely attacked, aluminum 24S and zinc. It was therefore suggested that these metals should be avoided where there will be an excess of water in the presence of Chlorothene. With other metals there was only slight corrosion (except in the case of iron where the rate of corrosion was 8 mils per year).

In the presence of excess water, Chlorothene will hydrolyze rather slowly at room temperatures, but as the temperature increases the hydrolysis rate also goes up quite rapidly. Work in this area is continuing and more data will be published later.

On the basis of all of the Dow corrosion studies in aerosol containers it is indicated that considerable dissolved water can be present in Chlorothene before hydrolysis or corrosion will become a problem. Chlorothene was found to have very little effect on most of the common surfaces found in homes and industry. One exception was plastic wall tile. Samples of insecticide and room deodorant formulations were prepared containing Chlorothene in varying concentrations. These were then sprayed on plastics at different dis-

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DuPont Survey

(*From Page* 10)

Mr. Crane pointed out that in 1955, insecticides, room deodorants, shaving lather, and hair sprays accounted for approximately 80% of the total number or aerosol units packed, and posed the question "Why haven't approximately 100 other products packed in aerosol form gotten off the ground?".

The survey indicated that, while 85% of the nation's housewives in urban areas use a personal deodorant or antiperspirant, only a third of this figure know about them in aerosol form. Of the latter group, only 58% have actually purchased an aerosol deodorant or antiperspirant, yet those who have tried both the aerosol and another type of packaging indicate a 2-1 preference for the pressurized product because of its economy, ease of application, cleanliness, and greater effectiveness.

"If through product improvement and increased selling, advertising and merchandising efforts, this percentage of users were only doubled—which is reasonable in light of package preference as indicated in the survey," Mr. Crane observed, "additional retail sales of at least $10 million could be achieved" in that product group alone.

Burn preparations, the survey indicated, were being used in some form by 73% of the housewives queried. Mr. Crane reported that this particular market, however, is still substantially an unsold one, because many home remedies (butter, vinegar, baking soda, etc.) are being utilized. "Evidence indicates that a burn preparation in aerosol form would improve satisfaction in at least three of the five categories."

"Only 4% of the respondents in this survey had any knowledge of the availability of burn preparations in aerosol form. For aerosol sun tan lotion the figure of those aware rose from 4.5% to 7% this year."

Aerosol paints, lacquers, and enamels, although first introduced in 1949, were familiar to only 38% of the urban families interviewed, and of those only 42% had been sufficiently sold on their advantages to purchase one of the self-spraying packages.

Of those who had used aerosols, more than half reported complete satisfaction, and they apparently prefer the aerosol method 2-1 over the brush method, mainly because of ease in use and quality of the paint job. Mr. Crane concluded: "It would appear that major sales effort is needed to convey to potential buyers the preference that users have once they have tried it."

On the plus side for merchandisers, the Du Pont market analyst cited aerosol hair sprays as an example of successful merchandising. Sales of all types of hair preparations last year amounted to about $160 million, he said, with the aerosol type package being familiar to 90% of users, and accounting for about half of all the sales of hair preparations. ★

Aerosols Booming In

FOR the past few months radio audiences "down under" have been able to tune in on one of their favorite MCs appearing on the "Pressure-Pak Show," and just recently a companion program was launched on television. Sponsored by Samuel Taylor Pty. Ltd., Australia's first aerosol loader, to promote its line of proprietary aerosol products ("Mortein" aerosol insecticides, "Gossamer" hair net, "Smoothex" shaving cream, "Air-O-Zone" room deodorant, and "Santa Snow"), the 4 programs represent a further extension of an already substantial advertising campaign in newspapers and magazines. Full page, and on occasion double-page, advertisements in full color by Taylor (mostly in *The Australian Woman's Weekly*) have been appearing for about a year and tend to lend credence to Taylor's contention that this company has had 95% of the total sales volume of pressurized products in Australia . . . *to date*.

Yet no matter how high the advertising budget nor how appealingly Taylor's products may be presented to the consumer, there is no doubt that a battle royal is soon going to be fought over that portion of nine million Australians' income that is, or can be, directed to aerosol purchases. Traditionally Australia is a market in which American companies have always been very active, and the aerosol field is no exception. Palmolive "Rapid Shave" is reported already outselling Taylor's "Smoothex," even though the Colgate product is almost 25% more at retail. Helene Curtis "Spray Net" and Elizabeth Arden's "Blue Grass" Hair Spray (that has a "gossamer lightness") competes with Taylor's "Gossamer" (!) at almost 60% more retail, and Chesebrough-Ponds "Wak" and Colgate's "Kan-Kil" are invading Taylor's "Mortein" aerosol insecticide sales. Late last year when Colgate introduced "Kan-Kil" to the market in Sydney and environs with a perfumed odor presented as a special feature, Taylor retaliated by pointing out that his "Mortein" product contained no such "useless" ingredient!

But Taylor's managing director, C. R. M. Graham, knows what he is about and it will take some doing to upset his present position in the Australian market. American advertisers need only look at some of Graham's advertising pitches to realize what they are up against:

"Rooms can have 'halitosis' too . . ."

"When you are on a good thing, stick to it!"

"Pressure packed products for happier living."

There are two contract loaders in Australia both of whom are eager to help American firms interested in introducing pressurized spray or foam products to the "Aussie" consumer:

Leonard Aerosol Industries Pty. Ltd.
Edward Street
East Oakleigh S.E. 12
Victoria, Australia

Parco (A/SIA) Pty. Limited
"Union House"
247 George Street
Sydney, Australia

The third contract loader, Aerosol Packers, has reportedly closed shop — their equipment going to Parco. Both Leonard and Parco are equipped for the moment only to do pressure filling. Parco originally used European-made equipment, but has now added Aerosol Fillers' semi-automatic pressure line made by Alpha in this country. Leonard is reportedly building a refrigeration line to be ready for operation early in 1957, which, as a supplement to their Alpha pres-

Australia

By Andrew H. Wolff
Pegasus International Corp., New York

Wak insecticide, Chesebrough-Ponds, Inc., $1.05; Blue Grass hair spray, Elizabeth Arden, $2.40; G-Bomb aerosol insecticide, Boveg Manufacturing Co., $.67; Gammexane insect aerosol, Imperial Chemical Industries of Australia and New Zealand Ltd.; Smoothex shave cream, Samuel Taylor Pty. Ltd. $.88; G aerosol insect spray, Randal Drug Co. Pty. Ltd.; Air-O-Zone, Samuel Taylor Pty. Ltd., six-ounce—$1.10, 12-ounce—$1.98; Rapid-Shave and Kan-Kil, Colgate-Palmolive Pty. Ltd. (Rapid Shave retails at $1.17); Air-Wick Mist, Air-Wick Pty. Ltd.; Santa Snow, Samuel Taylor Pty., $1.22; Coles aerosol insecticide, G. J. Coles & Co. Ltd., $.67; Gos amer invisible net, Samuel Taylor, $1.51; Helene Curtis Spray net, Heavenly Products Pty. Ltd.; Mortein ant and roach killer, Samuel Taylor, six-ounce—$1.00, 12-ounce—$1.78; and Coppertan spray-on suntan oil, Randal Drug Co., Pty. Ltd., $1.10.

sure unit (very similar to the machine acquired by Parco) should easily make them leaders in contract aerosol business. Not to be outdone, however, Parco is reported to have available facilities for undertaking cold filling, although no information is available as to the capacity of this equipment. Presumably, a full scale cold filling line will also be installed by Parco in the near future to wipe out any edge on the market which Leonard may obtain by virtue of their being able to shortly handle both types of filling operations. But even if competition should reduce the present contract loading costs (still almost twice that of American fillers), pressurized packaging in Australia is subject to other less easily solvable cost problems.

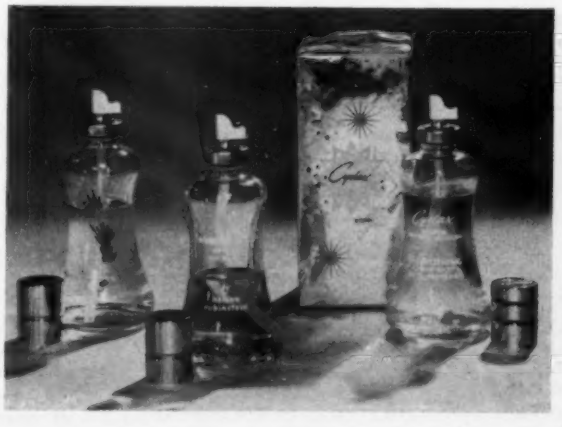
Most important is that of propellant. All must be imported and the long freight haul from England (one way for the propellant, two ways for the cylinders) increases substantially the already high price tags attached to I.C.I.'s "Arcton" propellant series. Mixtures of Arcton 6 and 9 (equivalent to 50:50 11/12) cost 3/3d Australian ($0.37) per pound in 1624 lb. drums (cost of return to England of empties included).[1] Similar prices for the Farbwerke Hoechst "Frigen" propellant series apply. Imports of Arcton 6 and 9 separately and of Arcton 33 (114), or of the German counterparts have been negligible to date, although expectations are that much more will be brought in once the recently introduced bottle colognes catch on.

Containers for the moment are of the seamed Continental type and apparently are readily available in six and recently in twelve-ounce sizes from Containers, Ltd., an affiliate of the Metal Box Company in England.[2] Colgate, at least initially, used British made seamless aluminum

(*Turn to Page* 37)

1. Prices for 11 alone: 3/8d per pound ($0.41); for 12 alone: 5/4d per pound ($0.59); for 22 alone: 9/4d per pound ($1.03); and for 114 alone: 7d per pound ($0.78).
2. Cost of six ounce cans decorated in three colors:

25,000	66/3d per 100	($.073 each)
50,000	54/3d per 100	($.060 each)
100,000	46/6d per 100	($.052 each)
250,000	44/6d per 100	($.049 each)



Three typical perfume packages: Mitcham Lavender, Potter & Moore, $1.87; White Magnolia, Helena Rubinstein, $1.89; and Gay Morning, Cyclax, $2.56.

AS A SPACE SPRAY . . .

Du Pont Methoxychlor

(90% TECHNICAL METHOXYCHLOR OIL CONCENTRATE)

gives knockdown in addition to kill!

Compare!

PEET GRADY TEST DATA—SPACE SPRAYS

	% Flies on Floor					% Dead
	2 min.	4 min.	6 min.	8 min.	10 min.	24 hrs.
OTI	79	94	97	97	96	21
1.00% methoxychlor	16	71	95	97	99	85

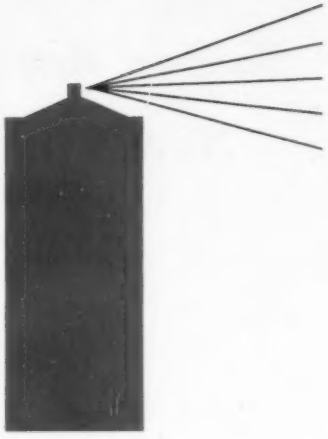
71% KD in just 4 minutes proves methoxychlor is much more than a lethal agent alone. Du Pont methoxychlor is one of the least expensive insecticides you can use in many effective combinations. Contact the district office nearest you.

DU PONT
REG. U.S. PAT. OFF.

BETTER THINGS FOR BETTER LIVING ... *THROUGH CHEMISTRY*

E. I. DU PONT DE NEMOURS & CO. (INC.)
GRASSELLI CHEMICALS DEPARTMENT, WILMINGTON 98, DELAWARE

San Francisco 4, California.....111 Sutter Street
Atlanta 8, Georgia.....739 West Peachtree Street
Minneapolis 2, Minnesota.....1207 Foshay Tower
Cleveland 14, Ohio.....1321 National City Bank Bldg.
Wynnewood (Philadelphia), Pa.....308 E. Lancaster Avenue
Houston 25, Texas.....1100 East Holcombe Blvd.



Pressurized Packages for Automotive Uses

by J. M. Kimmel
DeMert & Dougherty, Inc.

The following is the text of a paper given at the CSMA Convention in Washington Dec. 5.

WAKE up to the tremendous possibilities of aerosols in the "automotive after market!" Aerosol fillers! Have you recommended new aerosols to customers who are now marketing in the automotive field! Automotive men! Are you fully exploiting the possibilities available in aerosols?

I mentioned the automotive after market. I wonder if we realize just how large this market really is. While the automobile industry is continually racking up new records for the sale of cars, many people are apt to overlook the fact that the automotive after market is equally racking up record sales. In 1955 the automotive after market was reckoned at 7 billion 24 million dollars. There were approximately 46 million passenger cars on the street, each one of which will have averaged some $155.19 for purchase in the form of extras for their cars. Of this amount, $43.00 is for accessories, other than motor oils, lubricants, tires and batteries. This $43.00 per car represents 30 to 45% in profit to the dealer. This is usually the "high-profit" item the dealer has to sell and he is anxious to promote such items. As you can see from the figures mentioned, it is certainly worthwhile to pursue this automotive after market.

How is this tremendous market being sold? The three principal methods being used are:

1. Via gasoline companies
2. Via automotive jobbers
3. Via retail auto accessory and variety stores.

The leading gasoline companies usually have a "T.B.A." department. This tires, batteries & accessories department handles all products other than gasoline and oil. In the case of company operated stations (usually very few) they are sold direct. In the case of individually owned, company leased stations, they are reached via gasoline distributors. In cooperation with the distributor, a T.B.A. department employs its own salesmen to advise the dealer what is available and how to merchandise. Sales meetings for dealers are held monthly where visual aids and demonstrations are given to assist the dealer in the merchandising and promotion of T.B.A. items.

The second method of reaching the gasoline dealer or service station operator is via the automotive jobber. The large jobber sells to auto dealers, service stations and very often small "wagon jobbers." The automotive jobber has a sales force from 2 to 20 men, regularly servicing a specific area. He maintains a complete stock which he purchases to be in a position to fill orders promptly. This enables the dealer to pick up immediately any emergency needs; consequently a rather close relationship exists between the automotive jobber and the service station. The "wagon jobber" maintains a limited stock, consisting of fast selling merchandise, selling and delivering from a truck, direct. His area is usually the rural sections, often overlooked by the large marketers.

The third method, which lends itself to perhaps the greatest variety of products, although not completely automotive, is via the retail auto accessory stores, variety stores and mail order houses. These outlets are contacted by manufacturers' representatives and are sold direct from the manufacturer. Some of the larger outlets of this type are Pep Boys, Western Tire, Western Auto, Times Square, Strauss Stores, as well as the famous Sears Roebuck and Montgomery Ward mail order houses.

It is interesting to trace an automotive aerosol from its birth through its development stage, into the ultimate retail channels. "PiB," meaning "Protects Ignition and Batteries," a trade name owned by United States Industries Alcohol Co., is such a product. PiB was introduced by the armed forces during World War II.

Tests performed with it indicated that it completely protected the ignition system and batteries even when fully submerged in water. They tell a story that the first prisoners of war, captured shortly after the Normandy invasion, described how they laughed when the LST's in discharging their cargo of trucks, allowed them to be completely submerged, but when the

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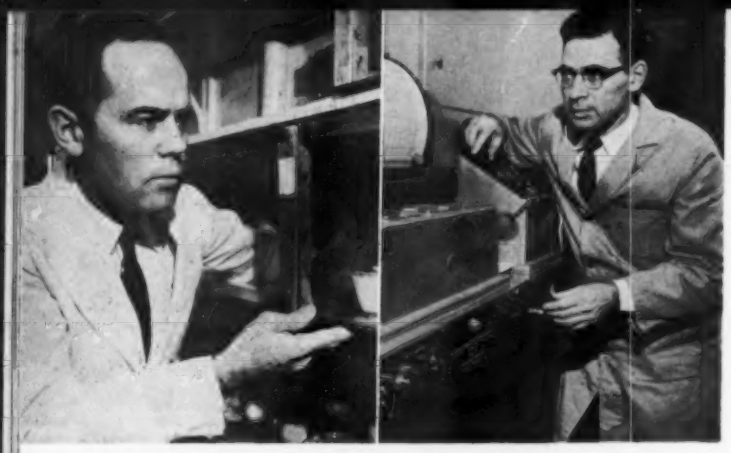
Shulton Announces New SYNERGIST for



J. H. Fales, entomologist of the USDA at Beltsville, Md., who evaluated the effectiveness of the new synergist; and Dr. Morton Beroza, also at Beltsville with the USDA, its discoverer.

THE Fine Chemicals Division of Shulton, Inc., Clifton, N. J., at a press conference Dec. 6 in Washington, announced the development of a process for manufacturing "Sesoxane," a new and reportedly very efficient synergist for pyrethrins and related insecticides. The material is now being manufactured in pilot plant quantities. Richard E. Brainard, vice-president of the corporation and general manager of the Fine Chemicals Division, who made the announcement, stated that pyrethrin formulations utilizing the new synergist will be of special interest to formulators and packagers of insecticides where a non-toxic product is essential for use on grains, fruits, and in household sprays. The particular adaptability of Sesoxane for aerosol insecticides was stressed at the conference.

Sesoxane was discovered by Dr. Morton Beroza of the U.S. Department of Agriculture in Beltsville, Md., and reported by him as the 2-(2-ethoxyethoxy) ethyl 3,4-methylenedioxyphenyl acetal of acetaldehyde. Shulton has named the material "Sesoxane" and has adopted for it the chemical name 2-(3,4-methylenedioxyphenoxy)-3,6,9-trioxaundecane.

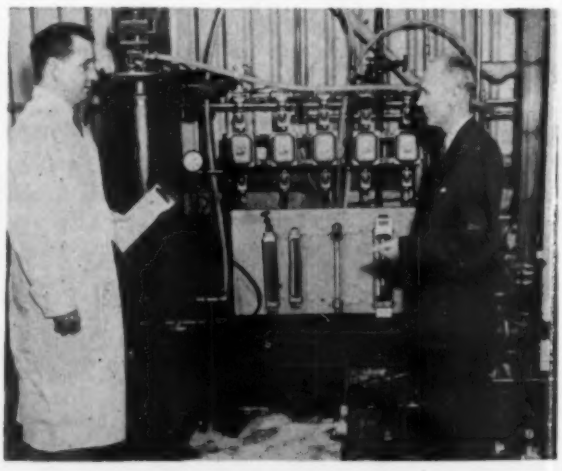
The announcement by Shulton followed the presentation of a special paper by J. H. Fales of the Entomology Research Branch, Agriculture Research Service, USDA, Beltsville, at the 43rd annual meeting of the Chemical Specialties Manufacturers Association at the Mayflower Hotel, Washington, D. C. on Dec. 5. The paper evaluated the performance of Sesoxane with pyrethrins and allethrin against house flies, mosquitoes, cockroaches, and Japanese beetles.

The USDA tests showed Sesoxane to be superior in synergistic activity to other commercial pyrethrin synergists and, because of its effectiveness, Shulton indicated that it expects it will cost less to use than other available synergists for equal knockdown and kill. High kill can be obtained without the use of DDT or other toxic insecticides, the tests indicate, and its pronounced effectiveness against cockroaches and other insects was also demonstrated.

Sesoxane is easy to formulate in conventional equipment because of its solubility in kerosene, the fluorinated hydrocarbon propellants, and other solvents. It has a faint, pleasant odor, and exhibits a low acute oral toxicity (LD_{50}) of 2000 milligrams per kilogram in rats. Complete toxicological studies are in progress and numerous formulations are currently being prepared and evaluated for registration with the USDA.

Shulton's Fine Chemicals Division also produces Piperonal (Heliotropine), which is the basic chemical required for the manufacture of Sesoxane. One key to this product is its characteristic dioxymethylene bridge. Piperonal is a white crystalline material with a floral odor, widely used in soaps, perfumes, toiletries, and cosmetics.

Shulton's chemists and engineers have developed what is described as a "superior and continuous" process for manufacturing Piperonal; and when the new synergist was first announced by the USDA, the company recognized in it an opportunity to expand its production of Piperonal toward the manufacturing of Sesoxane.



Dr. James Hardwicke and Dr. Lee Parker, of Shulton, with part of the pilot equipment they developed for the manufacture of "Sesoxane."

for pyrethrum AEROSOL INSECTICIDES

In the USDA tests at Beltsville, the new synergist, when used with pyrethrins in low pressure aerosols, gave markedly effective knock-down and kill results for the house fly, mosquito, roach, and Japanese beetle. Mr. Fales, in his paper before the CSMA, reported that it gave good results in aerosols of the type used to spray the interior of aircraft to prevent entry into the U.S. of Japanese beetles, fruit flies, and other types of insects. He pointed out that aircraft sprays, because of their very conditions of use, must be relatively safer for humans than DDT and other such formulations.

For the USDA tests, the new synergist was designated as ENT-20871. The accompanying tables give results of the tests in aerosols and space sprays, which were conducted by Messrs. Fales and Beroza and Mrs. O. F. Bodenstein, all of the Entomology Research Branch, USDA.

Dr. James Hardwick, Shulton chemist and co-developer of the company's pilot production facilities for Sesoxane, terms it the "really first big advance since 1948 and 1949, when synergists were first developed."

Discovery of the synergist was the result of observation of tests conducted early in the 1940's with pyrethrins and sesame oil. Further studies revealed that sesamolin and sesamin, components of the oil, together accounted for most of the synergistic activity of sesame oil with pyrethrins.

(*Continued on Page* 51)

TABLE 1—Effect of Sesoxane and Piperonyl Butoxide with Pyrethrins and Allethrin Against the House Fly By the Peet-Grady Method [a]

Synergist (2mg./ml.)	Pyrethrins Percent Knockdown in 5 Minutes	10 Minutes	Percent Kill in One Day	Allethrin Percent Knockdown in 5 Minutes	10 Minutes	Percent Kill in One Day
Sesoxane [b]	89	99	90	59	86	68
Piperonyl Butoxide [c]	86	94	72	62	81	56
Insecticide (no synergist)						
0.4 mg./ml.	61	65	4	48	79	14
0.8 mg./ml.	79	90	10	77	92	34
1.6 mg./ml.	90	99	37	88	96	68

(a) Test solution contained 0.4 mg. of the insecticide plus 2 mg. of synergist per milliliter of kerosene.
(b) Described by Beroza as acetaldehyde, 2-(2-ethoxyethoxy) ethyl 3,4-methylenedioxyphenyl acetal.
(c) Piperonyl Butoxide of 99.5% purity employed.

TABLE 2—Comparison of Sesoxane and sulfoxide as synergists for pyrethrins and allethrin in low pressure aerosols; tests against house flies. Insecticide 0.4% plus synergist 2.0%. (7 tests).

Aerosol No.	Synergists	Aerosol dosage (grams/1000 cu. ft.)	% Knockdown in 5 minutes	10 minutes	15 minutes	% Kill in 1 day
Pyrethrins						
G-1162	Sesoxane	3.06	49	80	89	86
G-1159	Sulfoxide	3.15	50	75	87	82
Allethrin						
G-1163	Sesoxane	3.31	53	69	83	76
G-1160	Sulfoxide	3.16	33	59	70	62

TABLE 3—Comparison of Sesoxane and piperonyl butoxide or sulfoxide as synergists for pyrethrins or allethrin in typical low-pressure aerosols; tests against house flies. (6 tests).

Aerosol (figures in per cent)	Dosage (grams/1000 cu. ft.)	% Knockdown in 5 Minutes	10 Minutes	15 Minutes	% Kill in 1 day
G-1059 Pyrethrum extract (20%) 0.5 DDT 2.0 Lethane 384 Regular 2.0 Piperonyl butoxide 0.5 Velsicol AR-50 5.0 Deodorized kerosene 10.0 Propellents 11 and 12 (1:1) 80.0	3.59	3	54	76	99
G-1188 Same as G-1059 except Sesoxane as synergist	3.39	23	71	83	97
G-1073 Pyrethrum extract (20%) 1.0 Strobane 2.0 Piperonyl butoxide 0.8 Velsicol AR-50 6.0 Deodorized kerosene 5.2 Propellents 11 and 12 (1:1) 85.0	3.84	27	67	80	88
G-1189 Same as G-1073 except Sesoxane as synergist	3.61	34	70	84	90
G-1176 Pyrethrum extract (20%) 1.25 Perthane 2.00 Piperonyl butoxide 0.75 Deodorized kerosene 16.00 Propellents 11 and 12 (1:1) 80.00	3.92	36	64	77	88
G-1191 Same as G-1176 except Sesoxane as synergist	3.72	42	73	83	87
G-1178 Allethrin 0.2 DDT 2.0 Sulfoxide 1.6 Velsicol AR-50 6.0 Deodorized kerosene 10.2 Propellents 11 and 12 (1:1) 80.0	3.86	32	61	71	92
G-1190 Same as G-1178 except Sesoxane as synergist	3.70	39	71	82	94

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Active ingredients for both types of sprays are *pyrethrins*, technical *piperonyl cyclonene, rotenone* and other cube extractives. Pressurized pet sprays effectively control fleas, lice, ticks on dogs and cats—and in their sleeping quarters. Equally convenient plant sprays control most of the common insects which attack flowers, ornamental plants and garden vegetables.

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Shipment of Aerosols

a summation of existing ICC regulations

The manufacturer or marketer embarking in the aerosol field is beset by an often bewildering array of regulations, warnings, and what seems to be red tape when he is presented with the problem of individual or bulk shipment of his pressurized packages. At first glance it may seem as though existing regulations are arranged with the specific object of thoroughly confusing all but the most legal mind. In order to answer some of the most frequently posed questions, AEROSOL AGE here attempts to simplify some of the regulations especially pertinent to the shipment of aerosols. It should be noted that, in all cases, the regulations themselves are the final authority.

"AGENT H. A. Campbell's TARIFF No. 9—Interstate Commerce Commission Regulations for the Transportation of Explosives and Other Dangerous Articles" is the impressive title of the document of regulations applying specifically to aerosols and other pressurized packages. The document, a red paper-bound official-looking volume, was first issued in May 1954, and has since had nine supplements. With a subscription list of 40,000, it covers a wide range of different industries, including the aerosol field.

Compliance with the shipping regulations helps to make products reasonably free from consumer hazard, but this is only incidental. Tariff No. 9 regulates *only* shipping hazards and is not applicable beyond this. It does not follow that merely because something is safe to ship in cartons or boxes that the product is safe to use in the home. This distinction should be kept in mind in any discussion of the regulations.

All of the marking and labeling procedures listed in the tariff pertain to the outside of the box or container—the so-called "outer shipping container."

The argument can be (and has been) raised: "How come aerosols are included in a document purporting to deal with hazardous substances?" However, in light of current interpretations and definition, this contention gets nowhere. Aerosols are, by definition, compressed gases; and compressed gases are, under the law, hazardous commodities. The tariff also specifies that any product shipped must be non-poisonous, as the term is defined in the tariff.

Compressed gases are defined as (for nonflammable materials) a material whose pressure exceeds 40 p.s.i. absolute at 70°F. In the case of a flammable material it may be classed as a flammable compressed gas, if, at 100°F., its pressure exceeds 40 p.s.i. Absolute. (Though it will vary from product to product, a pressure of 40 p.s.i.A. at 100°F. will be roughly equivalent to a pressure of 8-10 p.s.i.g. at 70°.*) Therefore, if an aerosol product is flammable, it is almost certain to be regulated by the tariff.

Flammability is determined by the now well-known flame extension, open and closed drum, and flame sustaining tests.

As will be obvious from study of the regulations, they are largely concerned with describing the adequacy of pressure containers to withstand the pressures involved. Furthermore, practically any product can be shipped in an aerosol can (either regular or 2P.) regardless of whether or not it is flammable; and any aerosol can may be shipped providing it has a flash point not less than 20°F. (according to the Bureau of Explosives test).

In order to deal with the wide subject with any degree of clarity, the regulations might perhaps be best understood if aerosols are broken down into the four most common categories:

1. If the product is non-flammable, and the pressure does not exceed 55 p.s.i.a. at 70°, the only regulations are that if a metal container be used it must not be liquid-full at 130°, and each and every can must be subjected to a precautionary test before shipments by heating until the contents reach 130°F.

Products in this category are exempt from packaging, marketing, and labeling requirements except such as may be requested by the carrier himself. Most aerosols, including the majority of space insecticides, room deodorants, snows, and hair sprays fall into this category.

2. If a product is flammable and has a pressure that does not exceed 55 p.s.i.a. at 70°., and if it sustains a flame and does not flash below 20°F., it can be shipped in an ordinary metal aerosol container. This type of prod-

* p.s.i.g. = pounds per square inch gauge. At sea level p.s.i.a. is equal to p.s.i.g. + 14.7.

uct must also not be liquid-full at 130°, and again each and every can must be test-heated to that temperature.

There are, however, some additional requirements for this category. A specification outer container is now required, each must bear the red diamond "flammable compressed gas" label, and the (outer) container must also be marked with the name of the contents. As currently defined and interpreted by the Port of New York and other bi-state authorities, such shipments may not be shipped by truck through Metropolitan tunnels.

Some aerosol paints, residual mothproofers, and insecticides are at present included in this category.

3. If a product is non-flammable, and the pressure is above 55 p.s.i. a. at 70° but does not exceed 85 p.s.i. a. at 70°. This type must also not be liquid-full at 130°, and each container must be heated to that temperature. However, products in this class are also regulated by the following additional qualifications:

(1) They must be shipped in specification ICC 2P. inner metal containers.
(2) The outer containers must be marked with name of contents.
(3) The outside container must bear the green diamond "compressed gas" label.
(4) The outer containers must be plainly stenciled with the phrase "Inside Containers Comply with Prescribed Specifications."
(5) The inner containers must be packed in an outer container to prevent accidental functioning of the valve.

The principal products in this category today are some types of insecticides.

4. If the product is flammable under the same pressure and temperature conditions as in category 3, it may be shipped, even though it sustains a flame, providing it does not flash below 20°F. For this specific category, in which are included some paints and other miscellaneous products, all of the specifications for the preceding category apply, with the exception of the substitution of the red diamond flammable compressed gas label for the green one. In addition, the inner container must have an overcap approved by the Bureau of Explosives.

These four categories cover most of the general aerosol products, but the tariff also sets up certain special categories for specific product types.

For instance, an exemption is made for containers of soaps or foodstuffs, in which the pressure does not exceed 115 p.s.i. a. at 70° or 150 p.s.i. a. at 130°. The higher figure is usually the limiting factor. As with the majority of other pressurized products, it must not be liquid-full at 130°, but in this case the shipper is not required to heat each container to 130°.

The tariff specifies a major difference in container specifications, however, for in this category it must be able to withstand twice the pressure of the contents at 70°, or one-half times the pressure at 130°—whichever is greater. This first exempt category includes nearly all shaving cream and foam products.

In recent amendments to the tariff, brought about by consultation with the CSMA late in 1956, two new exemptions were made:

1. For biological or medical preparations which may be deteriorated by heat, providing that pressure in the container does not exceed 55 p.s.i.a. at 70°. In this case the tariff specifies that only one container of each lot of 500 or less must be heated to 130°, and the container must not be liquid-full at 130°.
2. If the material in the can is non-flammable and a non-liquefied compressed gas is used, then pressures must not exceed 105 p.s.i.a. at 70° or 140 p.s.i.a. at 130°. In this category, too, the container must be able to withstand twice the pressure of the contents at 70°, or one and one-half the pressure at 130°.

The question may come to mind: What of the product whose pressure exceeds 85 p.s.i.a. at 70°, or one which sustains a flame and which flashes below 20°? Can this type product, according to ICC regulations, be shipped at all? The answer is that it can be — providing the proper ICC specification cylinder is used (either ICC 9, 40, 41, or 4B240ET). Others might be used, but these four are the cheapest. It will be remembered that World War II "bug bombs" were packed and shipped in (ICC 9, 40, or 41).

For glass or plastic, the ICC Tariff provides that, if the container is less than two inches in outside diameter, and has a fluid capacity not exceeding four fluid ounces, then any non-poisonous substance is exempt from pressure packaging regulations. If the container is larger than four fluid ounces in capacity, the packer is restricted to putting in materials which, by definition, will not be compressed gases. (Since compressed gases, according to tariff regulation, must be packed in metal containers). Such products, to escape classification as compressed gases, must be non-flammable with a pressure which will not exceed 40 p.s.i.a. at 70°.

The above are the regulations, considerably simplified, as they stand today. Within the next few months a number of changes will be made which will be far-reaching in their effect on the aerosol industry. They will enable the shipper to limit his consideration to one or two regulations on products which may formerly have been affected by as many as four.

The proposed changes would:

1. Exempt from specification marking and labeling all aerosol products, flammable or non-flammable, as long as their pressure does not exceed 75 p.s.i.a. at 70°, with the requirements that

a. If pressure exceeds 55 p.s.i.a. at 70°, a specification 2P container must be used.
b. Container must not be liquid-full at 130° and each must be heated to that temperature.
c. If flammable, the product must not have a flash point below 20°F.

(*Turn to Page* 50)

DISCUSSIONS on gas chromatographic analysis of aerosol products for measurement of essential oils and other volatile products were among the highlights of the annual technical meeting of the Society of Cosmetic Chemists at the Hotel Commodore, New York, on Dec. 13. M. J. Root and M. J. Maury, G. Barr & Co., Chicago, gave a paper entitled "Gas Chromatographic Analysis of Aerosol Products"; which was followered by a paper on "Gas Partition Chromatography—Application to Essential Oils and Other Volatile Materials" by C. L. Tietelbaum, Battelle Memorial Institute. Columbus. O.

TGA, Cosmetic Chemists, APMA Meet in New York

GAS CHROMATOGRAPHY PAPERS HIGHLIGHT AEROSOL SUBJECTS

According to Messrs, Root and Maury, "Gas-liquid partition chromatography provides an easy, rapid, and particularly suited technique for the analysis of the mixtures of liquefied gases and low boiling liquids that are found in aerosol liquids." Mr. Root, who delivered the paper, prefaced his remarks by describing how conventional procedures (mass spectrometry, infrared spectrophotometry, liquid density measurements, and vapor pressure measurements) offer unusual difficulties when applied to the analysis of liquefied gases and solvents present in aerosol products.

He declared that "special techniques must be developed for the introduction of the aerosol sample into the gas chromatograph. Such samples can be introduced into the chromatographic column as either a liquid or a gas. The liquid sample required is only .005 to .05 cc. and the gas sample is from 1 to 25 cc." He pointed out that the sample must pass through the column as a gas.

Mr. Tietelbaum declared that gas chromatography "has great potential for routine analysis and control as well as research on essential oils, aromatic chemicals, and other volatile materials." He reported that essential oils can be characterized as to type of oil, origin of production, and adulteration.

William R. Prindle, Hazel-Atlas Glass Division of Continental Can Co., Wheeling, W. Va., reporting on "New Developments in Glass Containers," described how imperfections and stress concentrations on the surface of glass have been investigated by means of both electron and optical microscopy and metal evaporation techniques.

He discussed the various coatings that have been applied to glass surfaces to prevent damage.

THE American Pharmaceutical Manufacturers' Association's mid-year and eastern section meeting at New York's Waldorf-Astoria Hotel Dec. 10-12, heard Arno H. Johnson, vice-president and director of research of the J. Walter Thompson Co., New York, declare that total sales of drug preparations and sundries have not kept pace with expanding consumer markets. "Just to equal the prewar relationship would have required an increase of 30% over the 1956 sales level," he declared.

He reported that "drug store sales have not kept up with disposable income of individuals, after taxes, and they have fallen far behind in relation to discretionary spending power."

"While both industry and service have an opportunity for substantial growth of their markets, they face greatly increased competition," the advertising executive warned. "It goes beyond just brand versus brand or competing services within a classification. It will include competition between whole product classes."

Leonard J. Robbins, of Langner, Parry, Card & Langner, New York, warned that the U. S. pharmaceutical industry has the "inherent occupational misfortune of being faced with far more potential foreign sources of competitive patent infringement" than any other industry.

"Any invention not patented in a foreign country can be used freely by foreign competitors, and all U. S. inventions obviously cannot be protected in all foreign countries if the company is to remain solvent."

He said the solution is to "avoid arbitrary and empirical decisions" and "formulate a rational policy based on the nature and potentialities of the company's products and a balancing of the efforts and expense involved against the profits accruing from foreign business."

Of some interest to aerosol cosmetic technicians were three reports at the scientific section of the Toilet Goods Association, Inc., held December 12th at the Hotel Waldorf-Astoria, New York City. A discussion of zirconium oxychloride for antiperspirants by E. G. Helton, E. W. Daley, and J. C. Ervin, Procter and Gamble Co., indicated a low order of toxicity and effective perspiration control for this compound. J. Kalish, *Drug and Cosmetic Industry*, reviewed the functions of a cosmetic research department, suggesting use of outside consultants for special, short-term nonrecurring investigations.

In an analysis of the application of gas chromatography to toilet goods analysis, Nathaniel Brenner, Perkin-Elmer Corp., indicated the method can be used to identify complex materials by comparing the total fractogram of the material as it appears on a recorder chart. He said it has the capacity of detecting adulterants and impurities in cosmetics materials even when the operator has no prior knowledge of the identity or quantity of these traces.

Orville Davenport, Avon Products, Inc., was chairman of the meeting. ★

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Aerosol Containers Featured Among Products Introduced At CSMA's Washington Convention

AEROSOL containers, aluminum, stainless-steel and tin-plated steel, dominated new products and developments introduced at the 43rd annual meeting of the Chemical Specialties Manufacturers Association in Washington, D.C. Dec. 3-5. Peerless Tube Co., Bloomfield, N. J.; The Hunter Douglas Division of Bridgeport Brass Co., Bridgeport, Conn.; Emson Research Inc., Bridgeport; and American Can Co., New York, all introduced new innovations in container styles.

Peerless Tube's new all-aluminum container, intended primarily for the cosmetic, perfume, and pharmaceutical market, is epoxy-lined and formed by an impact extrusion process. It is currently available in 16-cc. and 2¼-oz. sizes, and is reported to be considerably lower in price than the company's previously offered container. At the CSMA the package possibilities for fancy perfume containers were featured.

Hunter Douglas unveiled its "Varipak" aluminum stylized container, which the company reports will lend itself to "exceptional coloring and lettering, as well as to distinctive and specialized shapes which can be changed to meet the requirements of the individual manufacturer." It was also pointed out that the containers, which are being produced in three to 16-ounce sizes at present, are especially suited to color photography and television commercials. The special horizontal ribbing design is being offered in a number of variations and size ranges.

Emson Research Inc., Bridgeport, Conn. also introduced a wide range of sizes and shapes in its new aerosol aluminum container, in addition to a 15 cc. stainless steel container equipped with either a stainless steel or aluminum valve. The stainless steel units can be decorated like lipstick cases, yet are smaller and lighter in weight. As with the aluminum containers, the main advantages, from a chemical standpoint, are non-reaction with many pharmaceuticals, perfumes, etc., that are chemically unsuited for tin and other metals.

Emson's aluminum containers range in size from 15 cc. to four ounces, and like the stainless steel, come equipped with a metered or a non-metered valve. They are designed for personal products and are described by Philip Meshberg, company president and developer of the container, as "completely out of the category of the tin can." The new containers, which can be produced in a number of sizes and shapes, may be lithographed, anodized, or paper labeled. As the chief advantages, Mr. Meshberg cites low cost and ability to withstand high pressure and corrosion.

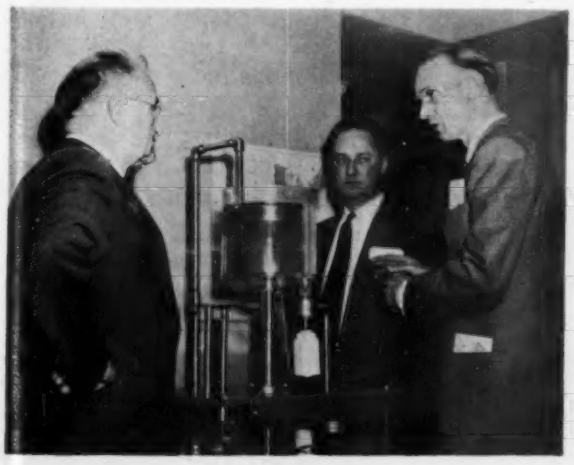
A new pressure can, intended mainly for cosmetics, was a feature of American Can Company's exhibit at the CSMA meeting.

Canco's new "Queen Size" 202 x 509—8-ounce pressure can, a complement to the 16-ounce "King Size," was presented as a new package for cosmetic-type products. The container can be furnished with either a one-inch cup-opening top or the simple one-piece top.

W. F. May, general manager of Canco's Non Food Commodities Division, announced that Breck's "Hair Set Mist" is already on the market in this can. He predicted that the con-

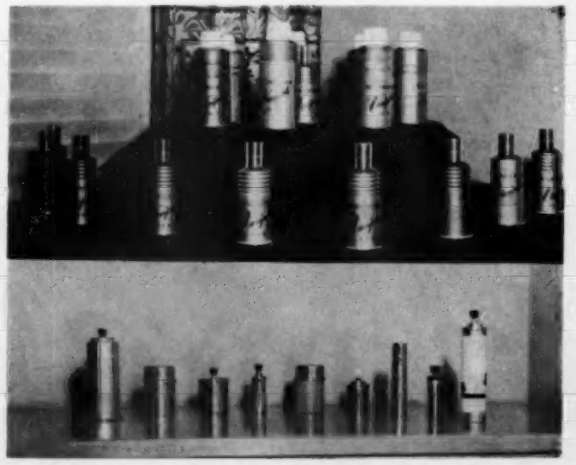
(*Continued on Page* 58)

C. F. Carter, Continental Filling Corp., and John Struthers, of John Struthers & Co., Ltd., listening as Edward Zeller, Mojonnier Associates, Inc., (right) explains the operation of Mojonnier's new rotary filling machine.



The Hunter Douglas "Varipak," as it was shown at the Bridgeport Brass Room. Decoration on the cans in photo is done in gold.

The new Emson containers, showing the various size ranges in which they are being offered. The container second from right is stainless steel. (Bottom photo.)



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dust
up
Spray on
DUST MOP or
DUST CLOTH
prevents
DUST FROM SCATTERING

New Products and Packages

Cool and Dry is a spray-on foot powder brought out this fall by LeMur Chemical Co., a division of the Nestle-LeMur Co., New York. It retails for 69¢ and LeMur Chemical does the packaging using ConCan containers and Aerosol Research valves.

Du Lundi recently was introduced in the Union of South Africa by Norwood Coaker, Ladybrand, South Africa. It is packaged in a Wheaton coated glass container, with a Risdon valve and cap, and a "micro-mist" activator.

Stride . . . a medicated foot powder is being test marketed by Lehn & Fink Products Corp., Bloomfield, N.J. The new aerosol contains orthohydroxydiphenyl and hexachlorophene as active ingredients, and is packaged in a four-ounce, seamless metal container. The product is designed to relieve athlete's foot, itching and aching.

Acrolite Crystal Clear Spray and **Acrolite Matte Fixative** were introduced last month in 16-ounce cans, as an addition to the 12 and six-ounce sizes already being marketed by Acrolite, Inc., West Orange, N.J.

Dust Up was introduced last month by Sprayway, Inc., Chicago, as a way to solve the "dust scatter problem." When sprayed on mops and cloths, it is said to pick up dust with a magnet-like action, holding and preventing scattering again to areas already cleaned. Retail price of the new 12-ounce can is $1.39.

Lassie is a new instant action dry-bath shampoo for dogs and cats. A product of the State Pharmacal Co., a division of Lanolin Plus, Inc., Chicago, it is being packaged in a 16-ounce container with a retail price of $1.98. The new product enables dry shampooing of pets to avoid danger of winter colds. It reportedly kills fleas, deodorizes instantly, and glosses coats.

Thinking

Insecticides
47,232,131 Units

Room Deodorants
32,110,180 Units

Other Personal Products
14,220,783 Units

(perfumes, colognes, shampoos, personal deodorants, sun tan oils, hand lotions, etc.)

Paints
7,723,368 Units

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Here are the right propellants for every aerosol need:

genetron®
AEROSOL PROPELLANTS

About Aerosols?

1955 sales figures, as reported by Chemical Specialties Manufacturers Association, Inc.

Shaving Lathers
45,387,375 Units

Hair Lacquers
53,790,785 Units

Mothproofers
8,743,351 Units

Christmas Snow
6,818,717 Units

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Consultant's Corner

by Robert A. Foresman, Jr.

A Look at Emulsion Aerosol Sprays

SINCE the first aerosol package, the problem to which every researcher has turned, sooner or later, is that of spraying water. Water is cheap and its physiological and solvent desirability have made its use in aerosol packages of major concern in a number of fields, some of which have not yet been revealed commercially. The problem has been solved here and there by substituting marginally acceptable carriers for the water, or utilizing a co-solvent system of alcohols. The handling of water essentially alone and economically on an acceptable functional basis in company with a liquefied gas propellant has culminated in the two emulsion systems discussed at the recent C.S.M.A. meeting in Washington, D. C. No doubt, the two schools of thought, namely; water in oil and oil in water, will become known as the Du Pont and General Chemical emulsion systems respectively, in view of the circumstances of their release to the industry.

Emulsion systems offer considerable promise — from a cost reduction standpoint, from a formulation standpoint, and from a hygienic standpoint. In order to clear the air, I will discuss this final aspect first.

A long term, vocal, and continuing concern on my part, has been the amount of mineral oil fog dispensed from aerosol packages and ultimately breathed in. Physiologically, once a non-volatile oil reaches the lungs it tends to plug the alveoli and accumulate in pockets as a non-assimilable liquid permanently present thereafter. Aromatic hydrocarbons (such as the naphthalenes) belong to the great group of coal tar chemicals which are carcinogenically suspect as an entire class.

These two conditions, separately or combined, add up to a situation to be avoided whenever possible, (to say the least). The emulsion systems may make it possible to reduce drastically this oil inhalation exposure. The oil (propellant) in water type offers the greatest possibilities in this connection. Since only small percentages of propellant are required, the oil (propellant)-in-water emulsion system is self-evidently ahead of the water-in-oil system from a unit active material cost standpoint.

Disadvantages, however, are relatively great. Foaming must always be a consideration in formulation, since the propellant must escape from the continuous water phase, resulting in foaming even of clear water. The only way of handling this problem is by controlling the amount and permanence of the foam. Admittedly, the degree of control of both these factors in a given formulation may be perfectly adequate, but the problem always exists. By reason of the gross particle size of most foam droplets the use of this system in true aerosol fashion will be limited by the degree to which breakup of water particles can be accomplished without foam phenomena intruding.

Another disadvantage of the propellant-in-water type emulsion stems from the same thing that makes foaming inherent. As the water is the continuous phase, the chemical reaction possibilities are considerable. This means the corrosion of metal containers or components will always be a present danger to the formulator. Degradation of active ingredients will be a great possibility due to the fact that ionic migration throughout the continuous phase will be possible, therefore involving the major portion of the container contents in the reactions which cause chemical breakdown and corrosion of metal components.

The water-in-oil (propellant) type emulsion has little to offer in the way of real cost cutting in its so far published form, although there are slight advantages in this direction of course. The primary advantage of this system lies in its reversal of phases compared to the oil-in-water types. Foaming, while it may be present, need not be inherent and the fact that the water is present as a dispersed phase makes the chemical breakdown of a stable emulsion a very slow proposition, since the ionic migration (mentioned before) is continuously interrupted by the oil barrier between water particles. Therefore if metal contamination and hydrolytic breakdown of propellant do occur, the reaction can go only as far as is allowed in the single microscopic droplet of water (in all fairness it must be said that this could result in localized high concentrations of corrosive products with consequent greater activity since dilution by the whole mass of ionically active material is not possible). In addition to the probable good result of the interruption of ion passage, the fact that the oil or external phase is the one most likely to wet the surface of the container and that the system itself will tend to orient the dispersed or water phase away from wetting the container renders the system intrinsically safe from a theoretical standpoint.

One of the disadvantages of the water-in-oil type emulsion as reported in Du Pont's KTM-21 and exemplified by their very illustrative series of packed containers is the necessity for relatively large quantities of auxiliary solvent (some form of oil) in all cases where Propellant 11 is

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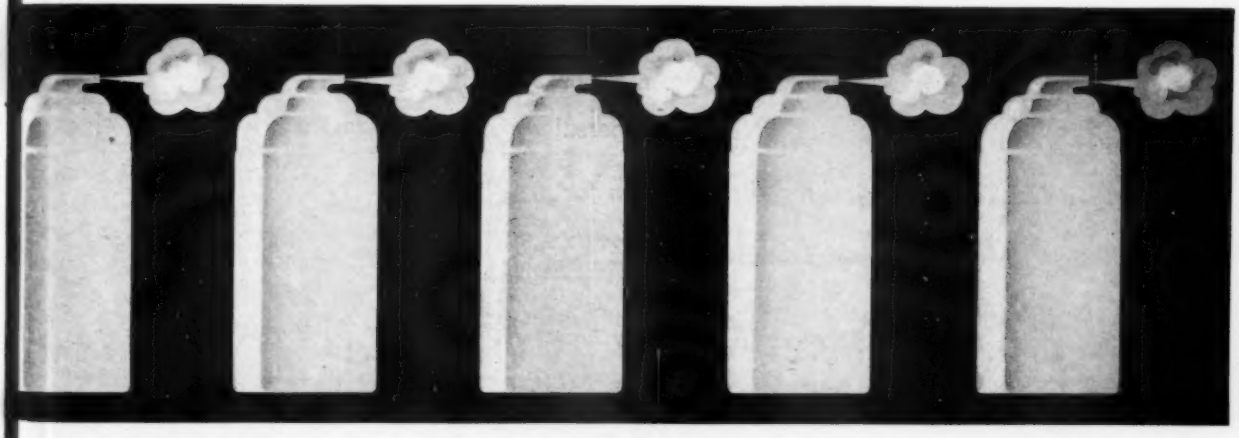

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absent from the formula, as well as in many of the formulas where it is present, and the need for gross quantities of auxiliary solvents in all cases where the propellant is cut to less than 60% of the total formula. It is to be hoped that as more work is done, this difficulty will be reduced to a point where low percentages of propellants can be emulsified as the continuous phase without auxiliary solvents in quantity being required. This, of course, is a very tough nut to crack.

A note of caution should be injected here. Neither Du Pont nor General Chemical have offered their emulsion systems as finished developments for any particular purpose. Formulation development must come in the same way formulations have always come — intelligent compounding, plus trial and error. Functionally, both physically and chemically, there will be successes, near failures, and failures. The only way to separate them will be by the old stand-bys of accelerated aging tests and actual shelf life tests, with a great deal of emphasis on the chemical changes in the active ingredients in addition to the regular checkout for corrosion and package component life. Only after a mass pack, held for one year at 70° is successful, should any of these products reach the market. This is doubly true if metal containers are to be used.

Reliance on any greatly increased temperature as a means of accelerating test results is extremely risky, as the physical structure of liquid colloidal systems may be so radically changed over a small temperature gradient that test results will be completely unreliable. It would appear that elevated temperatures for shelf life test purposes should have as their upper limit 110°F. for these systems. For what it is worth, extrapolation of time at 110° to equivalent normal storage time indicates 1 month equals approximately 4-9 months.

Another aspect of these formulations which should be kept in mind is the functional effect of the emulsifier itself, especially on surfaces. In some cases an immediate chemical

(*Turn to Page* 57)

Aerosols in Australia

(*From Page* 19)

cans for their Rapid Shave product and recent reports indicate that Extrusion and Dry Batteries Pty. Ltd. (116 Leicester Street, Carlton, Victoria) is tooling up to produce these aluminum aerosol cans locally.

Uncoated bottles are also readily available in a two-ounce size from Australian Consolidated Industries— which apparently has a monopoly on glass container business of all types. Coated bottles may appear soon — the result of much research and experimental work presently being undertaken. The need for higher pressures — and hence for coated bottles — is evident because temperatures in most Australian homes are lower during their cold season (our summer) than are prevalent here in the States. This is due in some cases to the lack of central heating (which in the more temperate areas is hardly necessary) or to the fact that homes are simply not kept at the temperatures we appear to prefer. At 65° to 68° F. a low pressure aerosol bottle will tend to stream, and although mechanical break-up actuators (Risdon "Micro-Mist" units may be available soon from Australian licensee production) may alleviate this problem, the production of plastic coated bottles still is very much to be desired. Strangely, and perhaps fortunately, during the big Christmas gift season when promotion and sales are at their height, Australia enjoys warm summer weather and the pressure problems for bottle colognes become much less acute.

National Radiators Ltd. (P.O. Box 14, Salmon Street, Port Melbourne) has been producing and supplying Risdon can and bottle valves to the aerosol trade for the past two years. Samuel Taylor has a license to the Aerosol Research valve (not including AR's two piece paint valve) and Parco has recently concluded an agreement with Newman - Green. Prices for these licensee-made valves are somewhat higher than in the United States (9d each or about 8½¢), but are roughly equivalent to what American-made valves would cost on an imported basis — if this were possible. However, it is not possible in view of prevailing dollar shortages which severely restrict any purchases of aerosol components from the U. S.

Typical of the problems created by import restrictions is the following comment from Horlicks Pty. Ltd., marketers of "Air-Wick" in Australia:

> "The import licensing situation in Australia at the moment is very difficult indeed and to make a really efficient aerosol pack of "Air-wick," we have to import certain raw materials which are not available in Australia. Despite the strongest representations, we have been unable to import sufficient of these materials to insure a continuity of production and for that reason we have been unable to undertake a consumer promotion."

Yet despite many problems a substantial market for aerosol products is evident in Australia — qualified naturally by the fact that the small population will seriously limit the *types* of pressurized packages which can be economically produced, promoted, and sold. During 1957 it is expected that perhaps nearly three million packages will be marketed, possibly 300,000 of these bottle colognes. I.C.I. estimates that the sales saturation point in Australia will be about half way between the U. S. and the U. K. (perhaps one package per year for each two units of population), while other qualified sources expect sales per capita to be on a par with the U. S. in two years time. Colgate confidentially expects its aerosol "Rapid Shave" to account for 10% of *all* shave preparation business (the lower price of Samuel Taylor's "Smoothex" notwithstanding!) and Helena Rubinstein remarks that consumer acceptance of their bottle colognes has been very good — sufficient to market three additional fragrances to complement their original "White Magnolia" package.

Australia would therefore appear to be potentially one of the most promising, albeit limited, markets for aerosol packaging; and second only to this country and Canada deserves most serious consideration by U. S. marketers of "push-button" conveniences.★★

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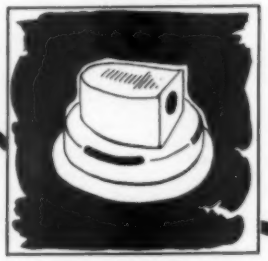

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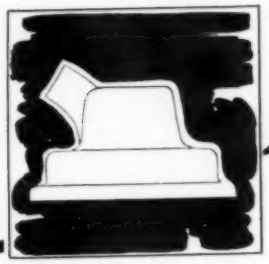

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Pressure Packaging Overseas

Dr. Tom C. Clark of Druk-Pak, Ltd., Zurich describes how aerosols are penetrating to Europe's smallest hamlets. He advocates that U. S. producers test market in Europe

EUROPEAN aerosol Christmas trade was good — better than average and at least 25% over last year's, in line with the general European over-all 1956 increase. Next month we will have an estimate of European 1956 aerosol production by countries which will, we believe, show some interesting changes.

Principal year-end products were the perfume and eau de cologne glass-bottle aerosols, with the French line leading in the usual attractive, but expensive, packages. This is the luxury trade, a European specialty, which Europeans buy readily and the Americans are more apt to buy in Europe than at home.

Artificial snow also made its first appearance on many markets and its re-appearance after a couple of years in Switzerland. With better formulations and valves — but still too expensive at the equivalent of $1.80 for a 12-ounce can — sales were good. For his workshop, Papa found a spray oil and some paints, and pressurized ski wax has hit the mountain trails.

Aerosols have now penetrated the tiniest villages, where even the peasants spray-can de-odorize their closed-up winter rooms. One distributor in Switzerland, copying Fuller Brush sales techniques, with over 200 salesmen ringing door bells in the Swiss Alps, has this year sold (along with his brush and other products) over 60,000 glass aerosols. He packages them himself and they are not to be had in stores; but the peasants know what is good even though the price is fabulous.

This adds to our predictions for 1957. In Europe the market is way ahead of product supply. Equipment builders are ready with new loading machines — practically all pressure models with cylinder metering and infinitesimal gas loss. And some valves of really novel design are about to hit the market. If the hand-made working models we have seen prove themselves in commercial practice — all fitting the standard one-inch metal can and the 20 mm. glass bottle — U.S. designing engineers will have to look to their laurels. Mass produced, the Europeans may beat them with lower manufacturing costs and better performance. Already we know of one European valve licensed for U.S. production.

The European container manufacturers are right up to the mark — drawn steel cans, tin plate cans three piece with soldered over-lap or electric welded seams, aluminum extruded one and two piece cans, and glass bottles, plain or plastic-coated. Where required, their internal lacquers are tops in quality and some of their plastic coated glass bottles leave nothing to be desired in either appearance or quality.

In the past two years more genuinely new items have appeared in Europe's infant aerosol industry than have during the same period in the U.S. We do not mean to deprecate the one or praise the other, but the facts are there. Starting from scratch, Europe now has its filling machines well below U.S. prices, and its containers, valves and propellants, are all being locally produced. This we foresaw, but it is only the start. The U.S. producers rely on a ready market and a turn-over in the millions. Over here one can afford to take more chances. It astounds us that U.S. companies with a new product always want to try it out first on the U.S. market. It costs much less to make a European sales appeal test, where, if successful, U.S. market acceptance would be practically guaranteed. The imported product is always a good sales angle. This is one reason why a few large U.S. companies, i.e., Union Carbide and Carbon, now have large laboratory set-ups in Europe. But for our industry there is no better example than the plastic coated glass bottle.

Just three years ago when the glass bottle was making its first appearance a leading U.S. company sought to license Europeans asking a figure of about $75,000 for the equipment plus a unit production fee — result: no sale. But now, three years later, Europe has plenty of plastic coated glass bottles of a quality every bit

(Continued on Page 57)

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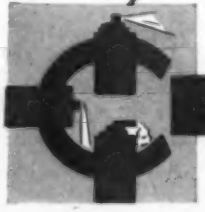

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NEWS of Pressure Packaging

DuPont Makes First West Coast Freon Shipment

First shipment of "Freon" from the new DuPont plant at Antioch, Calif. 37,000 pounds in a double trailer went to the Los Angeles plant of G. Barr & Co.

THE first bulk shipment of West Coast-produced "Freon" propellant was delivered from the Du Pont Company's new multimillion dollar plant at Antioch, Calif., Dec. 11, to a Los Angeles firm which will use it in household aerosol products.

Representing the first large quantity of liquefied gas turned out by the plant, the 3,700-gallon, or 37,000-pound, shipment contained enough propellant for 185,000 containers of a typical six-ounce aerosol hair spray. It was delivered in a double trailer tank truck to the plant of G. Barr & Co., Los Angeles, one of the large contract aerosol filling plants in the Southern California area.

Official start-up of the Du Pont facilities at Antioch, where construction of units for production of tetraethyl lead anti-knock compound for gasoline also is nearing completion, took place about a month ago. It is the fourth U. S. plant producing "Freon" compounds and other Du Pont plants are turning out propellant at Deepwater Point, N. J., Louisville, Ky., and East Chicago, Ind., with Du Pont of Canada Ltd., operating its own plant at Maitland, Ontario.

Initially the Antioch plant is producing "Freon-11" (trichloromonofluoromethane) and "Freon-12" (dichlorodifluoromethane) for use by West Coast aerosol and refrigeration manufacturers. Other types of "Freon" compounds are being repackaged at Antioch for West Coast distribution.

•

Chemway Purchases Carac

Chemway Corp., New Brunswick, N. J., late last month announced the purchase of the Carac Corp., Freeport, N. Y., manufacturer of insecticides, fungicides, herbicides, and fertilizers for home garden use. The announcement said that there are no immediate plans for changing the organization of Carac, which is described as being a pioneer in the development of a method of applying garden chemicals through a spray device attached to the end of an ordinary garden hose.

•

Canada Sets Label Rule

Cosmetics sold in Canada must bear labels carrying the complete name and address of the manufacturer, Canadian officials reported last month. They point out that any abbreviated form is a violation of the Canadian Food and Drug Acts, and that complete name and address must appear on the inner and outer label of cosmetics. The officials, quoted in an American periodical, noted that some products have not conformed to these regulations.

CanCo to Purchase Sun Tube

The American Can Co., New York, late last month announced the purchase of the business and assets of the Sun Tube Corp., of Hillside, N. J., a subsidiary of the Bristol-Myers Co. Two other Bristol-Myers subsidiaries, the Sun Tube Corp. of Canada Ltd., and Tubos de Estano, S.A. de C.V., Mexico, also were acquired by American Can. All three companies will be operated as Canco subsidiaries under their separate company names, and no changes are contemplated in personnel, policies or operations, the announcement said.

Sun Tube is reported to have the largest high-volume horizontal-impact extrusion machine in the U.S., and in addition it has collapsible tube and aerosol valve divisions. Just prior to the American Can announcement, Sun Tube president Kenneth M. Leghorn predicted an expansion of all three Sun Tube divisions in 1957. In addition to its facilities at Hillside, N. J., the company has a plant at Washington, N. J., described as being the most modern and highly automated in the collapsible tube industry.

•

Lehn & Fink Appoint 2

Lehn & Fink Products Corp., New York, recently announced the election of Paul Carey, general manager of Tussy Cosmetiques, and James M. Boohecker, general manager of Dorothy Gray, Ltd., as vice presidents. Both are members of the firm's board of directors.

•

Arden Brings Out Men's Line

Elizabeth Arden, New York, recently brought out a complete line of men's toiletries under the trade name "Arden for Men" including a foam shaving cream. Brought out just before the holiday season, this is Arden's first venture outside the line of feminine products.

Airlift for Pyrethrum

To avoid the blocked Suez Canal, African Pyrethrum (PYR) is being shipped into the U.S. by air. Picture shows arrival at New York's International Airport of first trans-Atlantic flight of PYR extract. The shipment consisted of 1000 pounds flown from the Chimiphar plant at Bukavu, on the eastern edge of the Belgian Congo in the heart of Africa.

•

Givaudan Appoints Cottle

Ben S. Cottle, Jr., has been appointed to the sales staff of Givaudan-Delawanna, Inc., New York. He will represent the firm in the Northern New Jersey area. Mr. Cottle was in the field of selling and marketing for a period of five years before joining Givaudan, and is the son of the manager of the firm's West Coast branch office in Los Angeles.

•

Chemway Merges 2 Units

Chemway Corp., New Brunswick, N. J., producer of aerosol and non-aerosol pharmaceutical and other products, recently merged its two ethical drug producing subsidiaries, A. C. Barnes Co. and Crooks Laboratories. The new subsidiary, known as Crookes-Barnes Laboratories, will maintain temporary offices at Mountain View, N. J., until new manufacturing and research laboratories there are completed. According to Charles T. Silloway, Chemway president, the merger was effected as a "move toward organizational strength through a more closely integrated ethical drug operation."

Aerosol Talk at Fla. Meeting

The Florida Section of the Institute of Food Technologists, meeting at Lake Alfred, Florida, on Dec. 11, heard W. Earl Graham, Division Manager of Research, Can Division, Crown Cork & Seal Co., Philadelphia, deliver an address entitled "The Potential for Food Aerosols."

Tracing the phenomenal growth of the aerosol industry, he gave a number of illustrations of case histories of typical aerosol products. He then discussed special problems associated with the application of the aerosol principle to various food products.

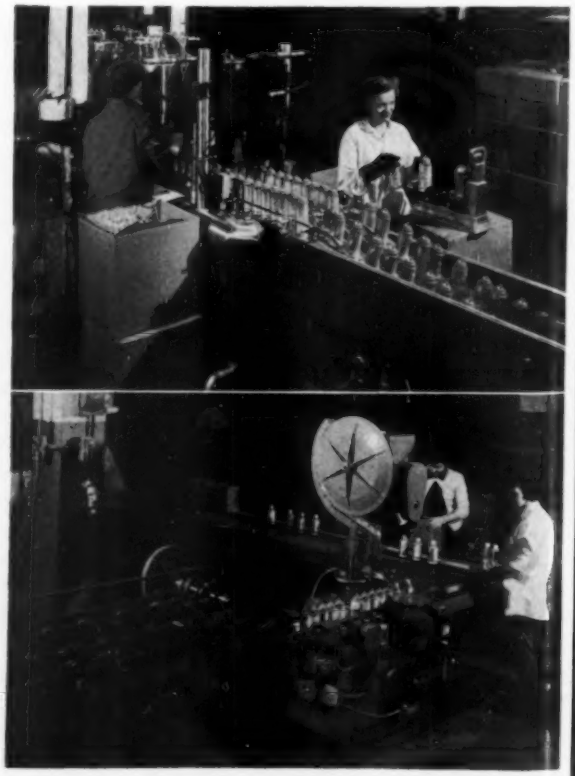
Mr. Graham concluded with the prediction that, with the facilities which food manufacturers are currently setting up for experimental pressure packaging, there should be a steady growth in the number of food aerosols available to the American public over the next several years.

Sprayon Installs New Production Line

SPRAYON PRODUCTS, INC., Cleveland, recently completed the installation of a number of new pieces of equipment comprising a production line that will produce approximately 80 cans (in a 12-ounce fill) per minute. The new equipment is housed in a separate building and occupies approximately 30,000 square feet on one floor. It is designed primarily for high-speed filling of paint products, J. G. Ellis, Sprayon president, indicated,

In addition to a large fire-proof mixing and blending room, solvents are supplied from an underground installation of five 5000-gallon tanks. These solvents are pumped and automatically weighed into a battery of 300-gallon stainless tanks.

Sprayon also has three other complete production lines, two of which are designed for cold filling and are specially geared to short runs for versatility of products. The third is a pressure-filling line equipped to handle four different methods of product fill. This latter unit includes a Mojonnier electrically heated test tank.



Two views of Sprayon Products' new filling line for the high-speed filling of paint products, which may be adapted for any type products suitable for refrigeration and cold filling. The company reports that it is particularly pleased with the performance of the automatic capper (bottom photo). Operation of this capper is said to eliminate the necessity of four additional operators. The test tank in the upper photo is a Mojonnier electrically heated unit.

Mackintosh to New Post

Henry G. Mackintosh, formerly a merchandising manager for the Standard Oil Co. of Indiana, Chicago, and retiring vice-chairman of the Aerosol Division of the CSMA, has been elected a vice-president of Candle Craft, Inc., Newark, N. J., a major candle manufacturer. He will be in charge of the firm's Midwest operations from its Chicago office. Mr. Mackintosh was with Standard Oil of Indiana for 28 years.

•

Chemway Elects Beckwith

The Chemway Corp., New Brunswick, N. J., producer of drugs, cosmetics, and household products, last month announced the election of Edmund R. Beckwith, Jr. as a vice-president and director. Mr. Beckwith also was named president of the Crookes-Barnes Laboratories Division, which was formed a week previously through a merger of A. C. Barnes Co. and Crookes Laboratories Inc., Chemway subsidiaries. Mr. Beckwith was formerly a vice-president of the Warner-Lambert Pharmaceutical Co.

•

Moves Toronto Office

Givaudan-Canada Ltd., moved its offices on Dec. 20 to new, modern, and enlarged quarters at 214 Merton Street, Toronto 7. The telephone number at the new address is Hudson 8-0133.

•

Fritzsche Names Janovsky

Fritzsche Brothers, Inc., New York, late last month announced the appointment of Harold L. Janovsky as chief flavor chemist. Formerly director of the flavor division of Dodge & Olcott, Inc., he replaces Dr. Edmund H. Hamann, who retired effective Jan. 1.

Mr. Janovsky has had 22 years experience in the chemistry of beverages, food flavorings, and essential oils, and prior to his Dodge and Olcott affiliation, held technical and executive positions with Virginia Dare Extract Co., Seeley & Co., Inc., and Aroscent, Inc. He is currently chairman of the Food Additives Committee of the Flavoring Extract Manufacturers of the U. S., and is a member of the industry panel, National Food Protection Committee and Vanilla Research Fund.

•

Artist to Design Packages

Aerosol Techniques, Inc., Bridgeport, Conn., last month announced that it has engaged M. Pittorie, a well known commercial designer to create and develop new packaging concepts.

According to H. R. Shepherd, ATI president, Mr. Pittorie's services will be available to large and small companies in the cosmetic, pharmaceutical, toiletry, and drug fields. He will work as technical consultant on aerosol contract packaging projects with the art directors of large firms and will also provide visual projections for new formulations developed by ATI. For client organizations which do not have their own art facilities Mr. Pittorie will provide a complete private label package design service. He has long been identified with aerosol packaging in the Bridgeport area.

"The need for new, round treatments in aerosol packaging, especially in the cosmetic and pharmaceutical trade, has become increasingly important, and we are delighted to have Mr. Pittorie work with us to bring to our customers the benefit of our know-how," Mr. Shepherd said. "As more and more aerosols go on the store shelves, the challenge to the packager to achieve point-of-sale as well as aesthetic appeal assumes a top priority.

"Many of our clients tell us that without a distinctive packaging dress it is pointless to venture a new aerosol product, regardless of the advertising outlay. Today's greatest merchandising success stories could not have happened without the right package."

•

Leo Wallerstein Dead

Leo Wallerstein, founder and board chairman of Wallerstein Co., Inc., New York, and head of Wallerstein Laboratories, died recently. He was well-known for his many contributions in the application of enzymes to a wide variety of industrial uses.

Burke Tube Manifold Sls. Mgr.

Tube Manifold Corp., North Tonawanda, N. Y., volume manufacturers of tubular products, including liquid receivers for refrigeration, industrial size disposable containers for aerosol products, and other tubular components, has announced the appointment of Richard F. Burke as sales manager.

At the same time the company reported an increase in its manufacturing facilities has been effected through the acquisition of a new plant and installation of new production and materials handling equipment.

•

CanCo To Sponsor TV Show

American Can Co., New York, will take up sponsorship of the top-rated NBC-TV News Show in January. Featuring veteran newscasters Chet Huntley and David Brinkley, the program emanates from the NBC news studios in New York and Washington, and is heard at 7:45 EST. Canco will sponsor the broadcast on alternate Monday evenings, beginning Jan. 28.

•

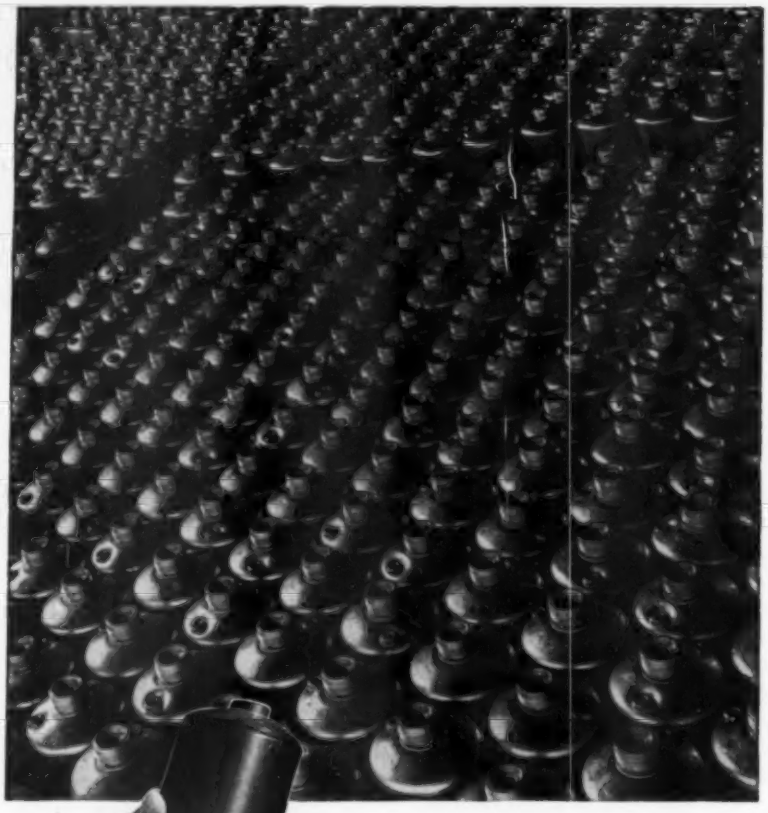
Dow Moves Chicago Office

The Chicago sales office of Dow Chemical Co., Midland, Mich., has occupied new quarters at 6000 West Touhy in the northwest part of the city. Territory of the Chicago office, which formerly was at 135 South LaSalle St., includes the northern half of Illinois and Indiana, the southern part of Wisconsin, and Iowa and Nebraska. Manager of the office is Henry S. Pierson.

•

Pyrethrum Shipments Up

In the 1956 crop year African pyrethrum producers sent 13 million pounds of pyrethrum flowers (or the equivalent in extracted pyrethrins) to world markets, reported *Pyrethrum Facts for 1957*, a booklet just issued by African Pyrethrum Development Inc., New York. This was equivalent to 150,000 pounds of pure pyrethrins. The booklet, which lists a number of general facts about pyrethrum, predicts a doubling of 1956 production by 1960.



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Consulting Firm Opened

Lodes Aerosol Consultants, Inc., 730 Fifth Avenue, New York 19, N. Y., began operations on December 1. Frederick G. Lodes, formerly of Precision Valve Corp., Yonkers, N. Y., is president of the new firm. The firm's offices are located on the top floor of the building, are handsomely decorated, and include in a special conference room one of the most complete displays in existence of all types of finished products in aerosol containers.

•

Methylene Chloride Booklet

"Methylene Chloride, The Better Multipurpose Solvent," is the title of a new 24-page booklet just released by the Solvents Sales Dept., Dow Chemical Co., Midland, Michigan. The three-color booklet gives complete technical information on the basic chemical, which has been used for some time as a component of modern, nonflammable paint-removers. The new publication lists the advantages methylene chloride offers for use as an aerosol pressure depressant, cold cleaning solvent, secondary refrigerant, and extraction and vapor degreasing solvent.

The booklet describes how the nonflammability, high solvency, low corrosive effect, and chemical stability of methylene chloride make it suitable for a number of uses. It is considered to be one of the least toxic of commonly available solvents.

The new booklet is illustrated, and contains charts and graphs depicting the chemical performance of methylene chloride under various conditions.

A CORRECTION

On page 39 of the November issue of AEROSOL AGE, in an article entitled "CSMA Recommends Minimum Fills for Aerosols," the following paragraph appeared: "4. American Can 211 (2-11/16") diameter by 604 (6-4/16") body height. Not under 14 ounces avoirdupois." The last figure should have read "16 ounces."

New Insecticide Formula

The Jasgo Chemical Co., Brooklyn, N.Y., last month announced a new formula for its "Wiff Wonder Bomb" aerosol insecticide. It contains pyrethrins, piperonyl butoxide, and bicycloheptene dicarboximide for the control of flies, mosquitoes, bedbugs, roaches, carpet beetles, ants, fleas, lice, and a number of other household insects. According to Jasgo, the new formulation is non-inflammable, non-irritating, and incorporates a number of other safety features that make it especially suited for use in food handling establishments, hospitals, institutions, and in the home.

The new formula may be used as a space spray (at a rate of four seconds per 1000 cubic feet), or for direct application (ten seconds per 100 square feet of floor space). The aerosol container is refillable.

•

Glidden Names Pollard

The Glidden Co., Cleveland, manufacturer of aerosol and conventional paints, recently named James W. Pollard, Jr., to the post of chief engineer. He had been director of manufacturing in the chemicals-pigments-metals division of the company.

•

Riker Introduces New Drug

Octyl nitrate for relief of angina pectoris caused by coronary insufficiency has been made available by Riker Laboratories, Los Angeles, in an aerosol package which permits the patient himself to quickly administer the measured dosage of the drug in the initial stages of an attack. The product is trade-marked "Medihaler-Nitro" and is available in pharmacies on a prescription basis.

Aside from the measured dosage feature, the aerosol method of application provides for faster absorption of the drug into the blood stream by oral, sublingual dosage. Absorption is speeded up because of the large blood stream area to which the medicant is exposed when inhaled directly into the lungs. Octyl nitrate is also of value for relaxing smooth muscle spasm of the gastrointestinal tract.

Medihaler-Nitro consists of a small vial of pressurized medication, with a metering valve for mechanically measuring the dosage each time the valve is depressed.

(*Aerosol Age* for September, in the new products section, describes an earlier Riker Medihaler, this one with epinephrine or isoproterenol for asthmatic attacks.)

•

Woolley Named To Babbitt

B. T. Babbitt, Inc., New York, recently appointed John L. Woolley assistant vice-president and assistant director of marketing. He joined the company in 1936 and for the past three years was national sales manager.

•

Kolmar Changes Name

Kolmar-Wilckens, Ltd., Barrie, Ontario, was to become Kolmar of Canada, Ltd., on Jan. 1, 1957, it was announced recently by Henry Groh, firm president. In a special announcement, he said:

"It was decided to make the change in our name only after many of our accounts suggested that we do so. The name Kolmar is used in the United States and throughout Europe, Mexico, and Australia, where we have manufacturing plants. This will also apply to other countries in which Kolmar will have plants in the near future."

•

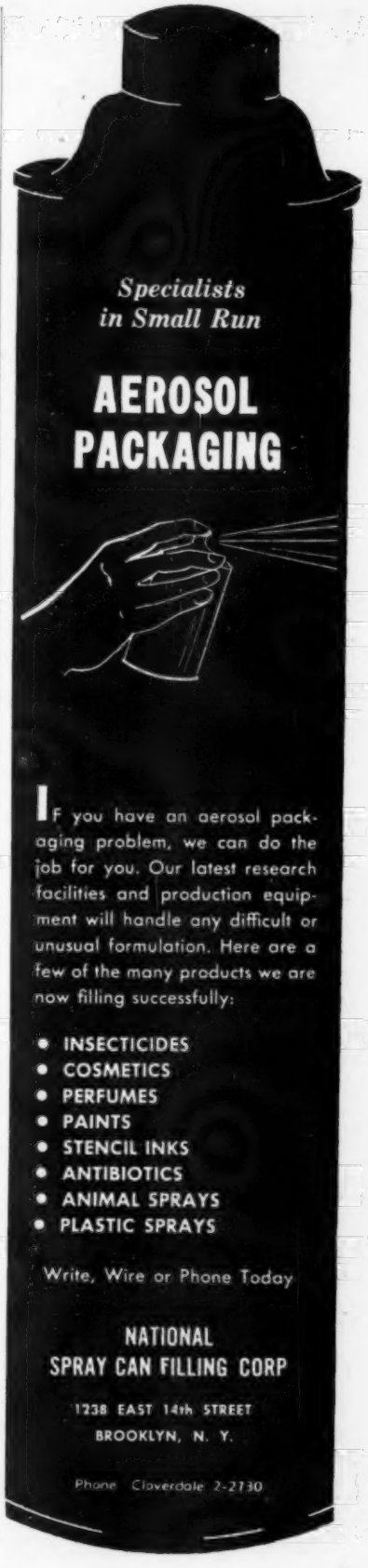
Bon Ami Income Up

Bon Ami Co., New York, one of the newer entrants into the field of aerosols recently reported a rise in net income for the nine month period ending Sept. 30. The company's 1956 net income for the period was listed at $111,233, as against $93,002 for the corresponding period 1955.

•

Glass Container Ad Program

The Glass Container Manufacturers Institute recently announced that its advertising budget for 1957 will be more than $1 million to publicize the advantages of its products for foods, drugs, and beverages. Main portion of the campaign will be devoted to full-color advertising pages appearing monthly in a list of women's consumer magazines.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Sun Tube Appoints Two

Sun Tube Corp., Hillside, N. J., manufacturer of aerosol valves and impact extrusions, last month appointed Claude L. Alexander to be general sales manager. He joined Sun Tube in 1952 as a personnel manager of its Washington, N.J., plant; and prior to his present appointment held posts as company personnel director, production manager of the Washington, N. J. plant, and assistant to the president.

•

W. D. McDonald was recently appointed vice-president in charge of sales by the Sun Tube Corp. of Canada, Ltd., a subsidiary of Sun Tube Corp. of Hillside and Washington, N. J. The corporation is also a manufacturer of collapsible metal tubes.

Mr. McDonald joined Sun Tube of Canada in 1950. He had been associated with Mundet Cork and Insulation Ltd., Montreal. He is a director of the Toilet Goods Manufacturers' Association and was chairman of the 1956 annual convention.

•

D&O Appoints Bouton

John Bouton, formerly chief flavor chemist for Synfleur Scientific Laboratories, was recently appointed director of the Flavor Department of Dodge & Olcott, Inc., New York. A veteran of 22 years in the industry, Mr. Bouton has also been associated with S. B. Penick & Co. and is a member of the Society of Flavor Chemists and the Institute of Food Technologists.

•

DuPont Names Grant, Wright

The Kinetic Chemicals Division of E. I. Du Pont de Nemours & Co., Inc., Wilmington, Del., has announced two appointments in its district sales forces. Robert Wright, Jr., was named technical sales representative for Freon propellants for the St. Louis area and John H. Grant was named sales correspondent in the New York district office.

Mr. Wright joined DuPont in 1947 as a chemical supervisor at the Grasselli, N. J. Works. He subsequently was assigned to various engineering activities of the company's atomic energy division in Wilmington and at the Savannah River plant operated by DuPont for the U. S. Government near Aiken, S. C. He joined the Kinetic Chemicals Division as a sales trainee last April.

Mr. Grant joined DuPont as a methods and standards engineer in 1950, and from 1951 to 1953 was in the control division of the company's Organic Chemicals Department in Wilmington. He then was a methods and standards engineer at that department's Chambers Works, Deepwater, N. J., until he was named sales correspondent in the Wilmington offices of the Kinetic Chemicals Division.

•

FDA to Take New Census

Commissioner George P. Larrick recently announced in Washington that the Food and Drug Administration will conduct a census of food, drug, and cosmetic establishments in the United States. Mr. Larrick said that the primary purpose of the census is to develop a plan for measuring the extent of industry compliance and to establish a statistical basis for periodic evaluations of the size and deployment of the Administration's inspection staff.

The study, which is expected to take six months, is being supervised by Shelby T. Greay, FDA director of program planning and analysis.

Beckman Buys Watts

Beckman Instruments, Inc., Fullerton, Calif., early last month announced the acquisition of Watts Manufacturing Co., Inc., Ronceverte, W. Va., manufacturer of a new, continuous-action gas chromatograph, an analytical instrument recently introduced to the aerosol industry for analysis of mixtures of liquefied gases and low boiling point liquids in aerosol products. (The instrument was described in two papers by Morris Root and M. J. Maury, G. Barr & Co., Chicago, before the CSMA and the Society of Cosmetic Chemists meetings in Washington and New York. See Pages 13 and 34).

•

ConCan Appoints Hughes

The Eastern Metal Division of Continental Can Co., New York, has appointed T. J. Hughes sales manager, general line. He had been district sales manager of the company's Paterson, N. J., district.

•

Propel Adds Lacquer

Propel Chemicals, Inc., New York, recently announced a non-pigmented spray lacquer concentrate as the latest addition to its line of aerosol concentrates for the loading industry. According to a company announcement the new lacquer concentrate can be packed safely by the loader without subsequent difficulties due to bubbling or blushing. Propel also announced the appointment of Philip Kashin as chief chemist.

— Convention Calendar—

British Institute of Packaging, Packaging Exhibition, *Olympia, London, England* ..... Jan. 22—Feb. 1, 1957

Plant Maintenance and Engineering Show and Conference, *Public Auditorium, Cleveland, Ohio* ..... Jan. 28-31, 1957

National Canners Association, 50th Anniversary Convention, *Conrad Hilton Hotel, Chicago, Ill.* ..... Feb. 16-19, 1957

Canning Machinery and Supplies Association, annual exhibit, *Conrad Hilton Hotel, Chicago, Ill.* ..... Feb. 16-20, 1957

Chemical Market Research Association, *Sheraton Hotel, Philadelphia* .. March 12-13, 1957

National Packaging Exposition, *International Amphitheatre, Chicago* .. April 8-11, 1957

Chemical Specialties Manufacturers Association, *Drake Hotel, Chicago, Ill.* ..... May 20-22, 1957

Chemical Specialties Manufacturers Association, *Hollywood Beach Hotel, Hollywood, Fla.* ..... Dec. 9-12, 1957

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PAFCo Issues New Booklets

Pressure Dispensing and *PAFCO Presses On!*, two booklets describing pressure packaging in the United Kingdom, have been issued by Pressure Aerosols Filling Co., Ltd., Berkhamsted, Herts, England, a subsidiary of Cooper, McDougall & Robertson Ltd.

The first of these is a "Survey of aerosol packaging in the U. K." and describes the company's facilities, some of the principles of the working of a pressurized package and a general survey of possibilities for aerosols in various fields. A considerable section of the booklet's 36 pages is devoted to a picture tour of the laboratories of the Cooper technical bureau.

PAFCO Presses On! describes, in words and photographs, the firm's five plants, four of which went into operation in 1955. According to the booklet, the five plants permit greater flexibility, as each plant is designed to handle specific groups of products

Who's Who in the Aerosol Industry

EARL GRAHAM, manager of research, Can Division, Crown Cork & Seal Co., Inc., Philadelphia, has completed ten years of activity in the aerosol industry. Since back in 1946, when Crown started to modify its drawn beer can for aerosols, he has been working with container problems for the industry. Also, during those ten years he has acquired the reputation of being one of the foremost authorities on food technology in the field of pressurized products.

He graduated from Pennsylvania State University in 1930 with a B. S. in biological chemistry and then went on to two years of graduate study at the University of Pennsylvania. From 1932 to 1937 he was with Francis H. Leggett & Co., Landisville, N. J., food canners and processors, as chemist and production manager.

In 1937 he joined Crown, then the Crown Can Co., serving until 1940 as Midwest research representative. Following his transfer East, he was placed in charge of the company's Research Department at Philadelphia in 1941.

Mr. Graham's activity in CSMA's Aerosol Division has included chairmanship of the scientific committee, vice-chairman of the administrative committee, and chairman of the public relations subcommittee. At present he is a member of the policy advisory committee of the CSMA and is chairman of the research committee of the Can Manufacturers Institute.

At present he is combining his experience in food technology and knowledge of aerosols to foster the growth of pressurized food products.

•

H. R. SHEPHERD, president of Aerosol Techniques, Inc., Bridgeport, Conn., was one of the early developers of Bridgeport's impressive aerosol industry. He was born in New York and after receiving his Bachelor of Science degree from Cornell University, served as a research assistant at the University of Maine. World War II and four years in the U. S. Army Air Force temporarily interrupted his professional career.

In 1946 he joined Bridgeport Brass Co. as assistant to the director of aerosol research, coordinating research activities with that company's outside contracts. In 1948 Mr. Shepherd was one of the small group that founded the Connecticut Chemical Research Co., and at the age of 26 became vice-president and a member of the board of directors of that company and of its subsidiary, Bostwick Laboratories. For Connecticut Chemical he was in charge of technical operations and Contract Sales Division; and under his direction sales of the division rose from a figure of $100,000 to something over $4 million. Last year he left Connecticut Chemical to form his own company, Aerosol Techniques, Inc.

During the Korean War he was chairman of National Production Authorities, Aerosol Group, for the Commerce Department, and since then he has served two years as chairman of the CSMA's aerosol division and as a member of the association's board of directors.

Mr. Shepherd is the author of several publications and is the editor of a book (in which many other industry leaders are participating) which will shortly be published by Inter-Science Publications. He has traveled extensively throughout England and France, surveying the aerosol industry there, and was recently honored by the British Society of Cosmetic Chemists.

Aerosols Featured at National Garden Show in Chicago

Manufacturers of insecticide sprays in aerosol containers made use of the 15th National Garden Supply Show at Chicago's mile-long Navy Pier, Nov. 18-20, to exhibit some of their latest aerosol products and containers before some 7,000 dealers in garden supplies.

The California Spray-Chemical Corp., Richmond, Calif., which is marking its 50th anniversary this year, introduced several aerosol garden sprays and a new squeeze duster. Among the Cal-Spray aerosols were an indoor plant bomb, an ant and roach bomb, and a dog repellant.

Standard Oil Co.'s line of petrochemicals featured a new aerosol insect killer for space spraying and an aerosol moth killer. Standard's "Pressure-Pak" bug and ant spray was also demonstrated.

Four products in aerosol containers were exhibited by the Plant Marvel Laboratories, Chicago, consisting of sprays for roses and African violets, household insects, and a new "i-bomb." The i-bomb, containing three powerful insecticides plus alcohol, has been designed for all-purpose use and for a variety of insects.

The no-seed "Blossomset" hormone for tomatoes was exhibited in an aerosol container by the Science Products Co., Chicago, for the very first time.

The "Spray-Kane," offered for use by the lady gardeners by the Donaldson Co., Inc., St. Paul, Minn., is said to dispense garden chemicals "the easy way."

Shipping of Aerosols

(From Page 26)

This exemption is especially significant because it places flammable and non-flammable products in the same category, therefore doing away with the red diamond label which has caused such complications in interstate shipping.

2. For coated-glass or metal containers not exceeding eight fluid ounces in capacity, where a non-liquefied compressed gas is used and in which the product is non-flammable, the pressure limitations will be 85 p.s.i a. at 70° or 150 p.s.i. a. at 130°. In this case the container must be capable of withstanding one and a half times the product pressure at 130°.

It should be noted that neither of the above changes has yet been made official, and action will probably not be taken to make them a part of the tariff until later this year. Inspectors of the ICC and the Bureau of Explosives are still governed by the existing regulations (1-4 of the categories listed at the beginning of this article, plus the exemptions immediately following), and all labeling and marking regulations are as they are described in these categories and exemptions.★

Chlorothene, New Solvent

(From Page 17)

tances. "Chlorothene in concentrations from 20-25% could be used without damage to the wall tile at a 3-foot spray distance "In these tests it was also discovered that methylated naphthalene type solvents used in insecticidal formulations containing DDT caused considerable damage to plastic wall tile, particularly at short spray distances which allowed a liquid film to build up on the surface of the tile. In room deodorants it was discovered that those formulations, prepared with 5% diethylene glycol, would allow the use of higher concentrations of Chlorothene before damage became apparent on the tile.★

Fragrance Important in Aerosol Package

"SELECTION of a perfume for an aerosol product should never be a hit or miss affair," declared A. Dingfelder, Felton Chemical Co., Inc., Brooklyn in a paper on "Fragrance in Aerosols."

"Experience has taught our perfume chemists which materials are most compatible with the different types of propellants, and which must be eliminated from the formulation of the perfume, as well as which propellants are most desirable and should be utilized to obtain the finest product, physically and odoriferously. Most essential oil houses are well equipped to test the perfume material to be supplied under actual aerosol conditions. Quite a few perfume houses have installed their own aerosol laboratories in order to create and check perfume materials which

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not only will be satisfactory from an odor point of view, but which will fulfill the three most vital requirements for aerosols: compatibility with (1) active ingredients, (2) propellants, (3) the container."

Mr. Dingfelder described how perfume oils can clog valves or cause container or valve corrosion, and he reminded that some of this deterioration may occur "only after a protracted period of time." To deal with this problem, he counseled, aerosol testing laboratories must be equipped with accelerated aging and shelf-testing equipment.

He reported that most existing perfumes "will not work in aerosols because the resins, waxes, and certain basic synthetic aromatics are not soluble in the propellant." He described how the use of alcohol in conjunction with propellant helps solubility, and how development of natural and synthetic fixatives has helped solve the perfume diffusion problem in aerosols.

As future developments which might open the way to new aerosol markets he specified non-refrigerant propellants, plus major and minor improvements in solvents, valves, containers and the development of new aerosol - compatible fragrances. He predicted a huge new field for flavor aromas as safe ways are discovered to package food products.

Mr. Dingfelder attributed to the perfume industry much of the return of public desire for fragrance in all types of new products — shaving cream, after-shave lotion, room deodorants, perfumes, colognes, etc. ★

New Synergist

(*From Page 23*)

Sesamolin, which has been shown to be about five times as synergistic as sesamin against the house fly, differs from sesamin in that it contains a 3,4-methylenedioxyphenoxy group in place of one of the 3,4-methylenedioxyphenyl groups in sesamin.

Because this structural difference caused such a marked change in activity, Dr. Beroza prepared a large number of methylenedioxyphenoxy compounds as candidate synergists. Many of the compounds showed synergism with pyrethrins and allethrin, but Sesoxane was superior in most aspects to all other methylenedioxyphenoxy compounds. Most of the synergists employed today contain the methylenedioxyphenyl group, but none contains the methylenedioxyphenoxy group except Sesoxane.

Shulton is an internationally known manufacturer of men's and women's toiletries under the "Old Spice" and other trade names, both in aerosol and other forms. ★

TABLE 4—Comparison of stored and freshly prepared sprays and aerosols containing either allethrin or pyrethrins plus Sesoxane tests against house flies. (4 tests with allethrin sprays, 3 tests with other sprays and aerosols.)

Insecticide	Months of storage	Dosage per 1000 cu. ft.	% Knockdown in 5 minutes	% Knockdown in 10 minutes	% Knockdown in 15 minutes	% Kill in 1 day
Sprays (Insecticide 0.4 mg. plus synergist 2.0 per milliliter)						
Allethrin	15	55.56 ml.	72	90	—	67
	Fresh	do.	73	94	—	84
Pyrethrins	15	do.	82	95	—	86
	Fresh	do.	91	99	—	89
Aerosols (Insecticide 0.4% plus synergist 2.0%)						
Allethrin (G-1163)	12	3.47 gms	58	84	95	91
	Fresh	3.00	43	62	78	80
Pyrethrins (G-1162)	12	3.28	58	88	96	95
	Fresh	3.24	37	79	91	87

TABLE 5—Comparative effectiveness of an aircraft-type aerosol with and without Sesoxane against house flies and Japanese beetles.

Aerosol (figures in per cent)	Dosage (grams/1000 cu. ft.)	% Knockdown in 5 minutes	% Knockdown in 10 minutes	% Kill in 1 day
House flies (8 tests)				
G-1187 Pyrethrum extract (20%) 2.5 DDT 3.0 Sesoxane 2.0 Cyclohexanone 5.5 Lubricating oil 2.0 Propellents 11 and 12 (3:7) 85.0	2.78	64	91	96
G-1152 (standard) Pyrethrum extract (20%) 5.0 DDT 3.0 Cyclohexanone 5.0 Lubricating oil 2.0 Propellents 11 and 12 (3:7) 85.0	2.64	59	80	94
Japanese beetles (3 tests)				
G-1187	26.10	—	80	85*
G-1152	24.40	—	77	82*
Untreated checks	—	—	—	0

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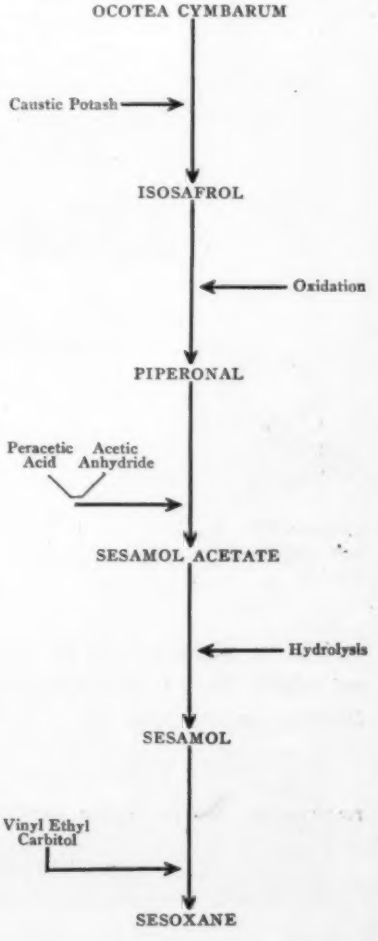

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New Aerosol Patents

The data listed below is only a brief review of recent patents pertinent to the readers and subscribers of this publication.

Complete copies of these patents may be obtained by writing to the publisher of this magazine, Aerosol Publications, Box 31, Caldwell, N. J., and remitting 50c for each copy desired. For orders received outside of the United States the cost will be $1.00 per copy.

2,769,506. Apparatus For Separating Aerosols From Gases. Patent issued November 6, 1956 to Harry I. Abboud, Ville Platte, La., assignor of one-half to Joe A. Izen, Houston, Tex. In a device for separating aerosols from gases, the combination of a casing structure having a first compartment and a second compartment, a porous filter bag positioned in said second compartment, a support member secured to the casing structure for dividing same into said first compartment and said second compartment and for supporting said filter bag within said second compartment, said bag having an open top, means for passing the gases through the compartments in a direction so they will pass from externally of the bag through the bag and out of the top of the bag opening whereby the aerosols will collect externally upon the bag, and a sound generator positioned in said first compartment for directing the waves therefrom in a direction towards and into the interior of said filter bag to subject the aerosols on the external surface of the bag to the action of the waves to cause the aerosols to drop by gravity from the external surface of the bag without causing appreciable visible vibration of the bag.

2,771,158. Recovery of Pigments From Aerosols. Patent issues November 20, 1956 to Richard I. Bray, Franklin, La., and Randolph Antonsen, Boston, Mass., assignors to Godfrey L. Cabot, Inc., Boston, a corporation of Massachusetts. A process for recovering finely-divided solids from aerosols comprising the steps of flowing the aerosol through a series of cyclonic separation zones, thereby separating in each zone a portion of the solids content of the aerosol, separating the attenuated aerosol leaving the last of the series of cyclonic separation zones into portions of unequal volume, conducting the portion of larger volume to a filtration zone and taking up the solids discharge of the filtration zone in the smaller volume portion of the aerosol, separating substantially all of the remaining solids from the aerosol in the filtration zone and discharging the separated solids into the aerosol stream thereby increasing the solids content of said aerosol, conducting the aerosol thus loaded to the first of the series of cyclonic separation zones, thereby increasing the grain loading of the aerosol being treated, and recovering the solids separated therein from the cyclonic separation zones.

2,772,035. Dispensing Valve For a Pressurized Container. Patent issued November 27, 1956 to Leonard M. Collins, Los

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&
Rommel

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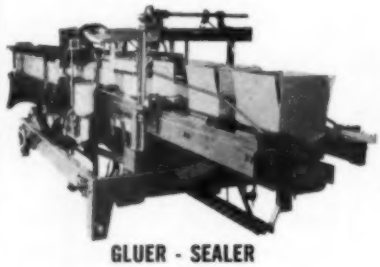

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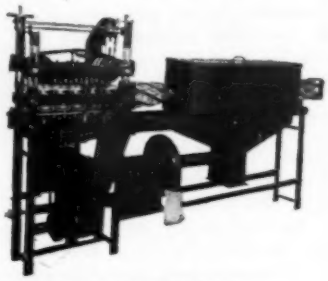

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Angeles, and Philip F. George, Arcadia, Calif., assignors to Pressure Dispensers, Inc., Beverly Hills, Calif., a corporation. A dispensing valve for a pressurized container comprising: a resilient grommet adapted to be mounted in an opening in said container and having an axial bore therethrough with an enlarged recess extending laterally from said bore in the portion of said grommet inwardly of said opening; a rigid tubular body fitted tightly within said bore and having a locking projection seated within said recess, said body having a nozzle portion extending outwardly beyond said grommet and said body being seated against the portion of said grommet outwardly of said opening to compress said grommet in sealing engagement with said container; and a valve stem extended through said body in floating relationship thereto and defining therewith a passageway for the flow of material from said container, said stem having a head on the inner end for seating against the inner face of said grommet.

2,772,117. ATOMIZER FOR LIQUID AND PULVERULENT MATERIAL. Patent issued November 27, 1956 to Inge Ritzau, Alfons Brugger, and Balthasar Hofler, Starnberg, Upper Bavaria, Germany, assignors to Paul Ritzau, Starnberg, Germany. In an atomizer for effecting fine distribution of liquids and pulverulent solids, comprising a nozzle for producing a cone-shaped jet of a gaseous fluid, means for conducting gaseous fluid under pressure to said nozzle, a gas flow control member provided with a gas deflecting surface having at least one edge of substantial length, said member being so positioned relatively to said nozzle that said surface is in the path and substantially at right angles to the direction of said jet, and that said edge is tangent to the cone of said jet whereby the major portion of said jet will be spread into a fan-like gas stream by said edge, a chamber at least partly below said nozzle to receive therein a supply of the substance to be atomized, and at least one duct from close to the bottom of said chamber to the vicinity of said nozzle, said duct having a discharge opening laterally of said nozzle and underneath said fan-like gas stream, whereby portions of said substance will be sucked into said fan-like gas stream along said edge.

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Talks To IIT on Aerosols

Edward H. Zellar of Mojonnier Associates, Inc., Chicago, is scheduled to speak at the Illinois Institute of Technology, January 9th on the subject, "Pressure Filled Containers and Equipment Necessary for their Production."

Editorial

(*From Page 9*)

manufacturers would have a chance to show the merits and possibilities of their respective products.

Booth fees would keep the cost of such an exhibition down, and it would surely attract a considerable segment of the general public—along with a good many potential manufacturers and packers. Publicity in the press would be assured and it is not inconceivable that such an aerosol show would result in full-page feature stories by editors in search of good new material. Additional news releases could be judiciously "planted" in papers and periodicals within a wide radius of each city, and low-cost box advertisements could be placed in papers covering manufacturing areas. To the public, as well as to the vast fringe of industry as yet relatively unaware of the meaning of "aerosol," a well-publicized aerosol exhibition could have considerable impact.

As with every campaign in which the funds are contributed, the publicity committee is bound to have advice from every quarter. Every contributor, including the custom filler from the farthest corner of New Mexico, will want the campaign to touch his state or city. However, it is apparent that the committee's activities will have to be restricted to the most economical, most effective campaign to make the manufacturer, and the consumer public, aware of aerosols as a separate and

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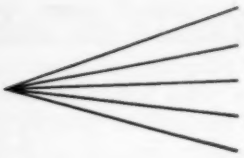

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Rates for classified advertisements are ten cents per word, $2.00 minimum, except those of individuals seeking employment which *Aerosol Age* will run without charge. Check must accompany all classified advertisements. Address all replies to Classified Advertisements with Box Number, care of *Aerosol Age*, Box 31, Caldwell, N. J. Closing date: tenth of month preceding month of issue.

Help Wanted: "Opportunity for young, aggressive chemical engineer with some experience in the refrigeration industry and/or aerosol industry. Compensation open — interview will be arranged." Address Box 122, c/o AEROSOL AGE.

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distinct way to package a wide range of products.

A great deal of discretion will have to be used if we are even to scratch the surface with the proposed aerosol publicity campaign. ★

Emulsion Systems

(*From Page* 37)

reaction phenomenon might be important, but far more important is the problem of excessive soiling and the development of undesirable surface moisture due to the hygroscopicity of the residual emulsifier (on occasion, of course, this condition can result in a desirable static electricity discharge characteristic).

The emulsion systems offer great possibilities for many types of aerosols and they deserve a lot of continuing investigation. The broadened spectrum of products offered by their use should be a strong stimulus to expanded research and development of water-based aerosols. ★

Aerosols Overseas

(*From Page* 39)

equal. Along with this development, Durable Plastics Co. Ltd., of England, which has some of the best we have seen in Europe, is ready to license its know-how for a flat fee of around $10,000 with no royalty strings attached.

Iron Curtain Inquiries

In line with other European developments have come the first inquiries from behind the Iron Curtain. So far we have heard from East Germany, Poland and Czechoslovakia, each requesting full information on filling equipment, valves, containers, etc., as well as some filled samples of insecticides and de-odorizers, for both of which they should have good markets indeed. In East Germany, at least, they have the propellant from a former plant of the old I. G. Farben combine. They will, of course, endeavor to copy the other essentials. But we feel that any contribution on our part, particularly at this time, is most worthwhile and we have hastened to comply, at standard rates, of course. Should any of our readers have other ideas on this subject we would be glad to hear from them.

European Formulation

Some time ago we cautioned about the wholesale adaptation of U.S. formulations and practices to European conditions without necessary changes. The difficulties lie not with the kind of product or market, but rather with the formulation and product composi-

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tion. The simple fact is that some U.S. packaged containers don't spray in Europe as they do in the U.S. European temperatures in the warehouses, shops and homes are different. Our U.S. cupboards are as warm (or cool) as the rest of the house. In Europe the hall storage closets have a temperature almost equal to the outside, and the toilet (always separate from the bath) generally has no heat at all. We have seen confident U.S. importers trying to demonstrate U.S. packaged hair preparations, only to have a long wet stream emerge from the spray nozzle. Due to temperature changes the pressure and spray was gone. We can well imagine the opposite effect in hot countries where in a display window the temperature could easily mount to 150°F. What effect do these temperature changes have on the formulations themselves?

From our talks with chemists who have studied the problem, these differences are significant and the best European loaders are now using propellant mixtures (and in some cases additives) which for the same products are completely different from U.S. practice. Of course they have learned to add more of propellant 12, but have other tricks as well. Because of the necessity of adapting aerosol products, filling practices and techniques to the prevailing climatic and other characteristics in foreign lands, we wish to emphasize for new companies interested in the overseas market the desirability of making thorough studies and dealing only with experienced suppliers for their filling equipment, valves, concentrates, etc.

Due to dollar shortages, more favorable foreign currencies, language difficulties, etc., South American, South African, South Eastern and other countries, turn more readily for these items to Europe, than they do to the U.S. Some European suppliers in these fields have only a limited experience in a very restricted market and the selection of the right supplier is of prime importance. Also some of them can furnish only one item, while others are able to offer a comprehensive service covering the entire package from filling equipment to label. The problem is not easy for an overseas company, which generally has to buy from a catalogue and pay with letter of credit before it even has opportunity to see the goods.

Inhibitor

The aluminum HCL inhibitor we mentioned a couple of months ago has successfully undergone preliminary tests by one of Europe's largest aluminum producers. These tests which cover pickling and other surface preparation problems with aluminum products are continuing and final results can probably be appraised in a couple of months. Separate simultaneous tests are under way covering products packaged in aluminum tubes and cans, but these will require a longer time for conclusive appraisals. We will continue to follow these developments.

New European Aerosol Trade Association

Under way in Europe is a timely movement to establish a trade association for its growing aerosol industry, with members from the various European countries, where the industry is more advanced, participating. This we look upon with favor, as it should provide an organization to set up needed standards on safety, pressures, packaging, labeling, etc. Naturally, such a group will want to draw heavily on the broad U.S. experience and will look forward to cooperation from the leaders of the U.S. aerosol industry. Such an association can also provide a focal point of contact between Europe and the U.S. for the exchange of ideas and developments in this new industry now under way on both sides of the Atlantic. The only thing needed is a little more peace. ★

Products Introduced

(*From Page 29*)

tainer will gain popularity among women because it fits easily into the palm of the average woman's hand.

Mojonnier Associates Inc., Franklin Park, Ill., introduced its new Rotary Cold Fill Machine in a pilot model. The machine uses an overflow method, a 24-volt system, and the company predicts that it will be capable of filling up to 150 containers per minute, when it is fully developed. It has special timed metering devices for assuring exact fill of each container.

The company reports that the rotary method of filling allows for more time for each unit on the machine (up to 15 seconds with the new unit), without a slowing down of the filling line. Mojonnier expects to be able to produce the machines early in 1957.

In addition to new containers and filling equipment, the perfume and aromatic companies all introduced new scents for aerosol shave cream, hair set, colognes, and most other products.★

Automotive Aerosols

(*From Page 21*)

same trucks emerged on the beach, operating at high gear, they knew they were whipped.

After the war, an attempt was made to market PiB via usual methods, to the consumer. An advertising campaign was launched and the product was well received. However, when the consumer or the service station dealer tried to apply PiB, the material was so messy and difficult to handle that gradually its popularity began to wane. While it was agreed and accepted that the product performed well, it was eliminated from the market because of difficulty of application.

At this time, one of the major gasoline marketers in the Middle West approached us, as a contract aerosol filler, with the thought of putting PiB in an aerosol dispenser. Preparing an acceptable sample took a comparatively short time. However, to thoroughly spray an engine satisfactorily or easily was still not accomplished. It was then necessary to develop a package which could be sprayed from any position, upside down, or sideways. Obviously a valve had to be specifically developed to meet this necessity, and ultimately this was accomplished.

The aerosol packaged product was approved by the gasoline company,

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and after successful market testing, was released for distribution. PiB now found a new lease on life and sales have been mounting ever since. With the increase in sales, other marketers became interested in the product. Consequently, although PiB appeared to be a complete failure before, in spite of its quality, Aerosol application saved it from oblivion and brought success!

This case history is typical of aerosol products being marketed in the automotive after market. I am sure others in the aerosol field have had similar experiences.

Some of the products now being sold via this automotive after market are insecticides, lubricants, polishes and polish removers, greases and degreasers, penetrating oils, rust removers, rust inhibitors, ignition sealers, paint enamels, paint lacquers, paint primers, deodorants, fire extinguishers, diesel engine starters (motor primer), upholstery cleaners, leather conditioners and cleaners and scores of others. One could go on and on, as the field is limited only by one's imagination. As the Automotive After Market grows, so will the aerosol products being merchandised via this vast and potential market. Wake up—get your share!

Editor's Mailbag

(*from Page 6*)

Argentine aerosol industry will shortly be making substantial progress as it has in various European countries.

Dr. Emiliano F. Ruth
Olivos Fcngbm
Monteverde, Argentina.

"Please inform us whether you are following the literature concerning aerosol problems, and in that case, whether you are preparing an annual bibliography. Nowadays, aerosol articles are published in so many magazines that it is very difficult to find everything of interest for the aerosol filler. We therefore hope that you are preparing such a service for your subscribers."

Erik Wahlin
Skandinaviska Aerosol AB
Stockholm, Sweden

We included an index in the December issue of Aerosol Age (*Page 66*) *in which we listed all articles that have appeared in our publication. However, it is not our intention to publish a general bibliography for the entire field. The way things are developing, this is becoming quite a major task and one which would be too much for us to undertake. Perhaps, however, it might be a matter for The Chemical Specialties Manufacturers Association to consider. We shall be glad to offer the suggestion to them.*

—The Editor

The following communication was received from H. W. Hamilton, secretary of C.S.M.A., in response to our suggestion:

An annual bibliography of articles related to aerosols would be very interesting and helpful to have available. However, the task of gathering such information would be quite a chore. At present, during the development period, the list would be quite lengthy.

In the past there have been instances of bibliography compilation in our industries, but the interest was not sufficient to continue the work. The only source of such a compilation would probably be from the library of one of the larger corporations. We would not be prepared to gather such a list with our present staff.

H. W. Hamilton
Chemical Specialties
Mfrs. Assn.
New York

OVER THE TRANSOM

WELL over a hundred folks in the aerosol field took advantage—at the CSMA convention in Washington last month—of the opportunity to visit the newly expanded plant of the Pressure-Pak Division of John C. Stalfort & Sons in nearby Baltimore. While building delays have postponed completion of the plant expansion program, it was obvious from what the visitors saw that in another few months Stalfort will have in operation one of the largest and most thoroughly up-to-the-minute aerosol filling plants in the country.

This latest expansion will add some 57,000 square feet to the existing Stalfort plant, with its 25,000 square foot area. It is the fourth major expansion in the six years since the plant started operating. Apparently this time Stalfort planners decided to stop fooling around and really expand enough all at once so they wouldn't have to be thinking in terms of a new addition in a year or two. Enough new area has been added so that there will really be ample space for storage of raw materials and finished stocks, and plenty of room for one or two more filling lines in the near future, one of which may well be for butane-based aerosols.

We shall hope to have an opportunity to pay a return visit to the new plant in the spring, when the present three high-speed lines have been relocated in the expanded quarters,—and to have an opportunity to see in actual operation the humidity controlled hood which Stalfort is readying for packaging pharmaceutical aerosols. It is believed to be the only unit of this type in use in the industry.

* * *

A number of new aerosol products, some of which could well be big volume items if and when they reach the market, are in various preparatory stages. Lever Brothers are reported to be test marketing a new aerosol topping, although we have not been able to confirm details through inquiries directed to the company. Our reliable source, however, advises that in a spot marketing test just before Thanksgiving the Lever product sold out a week before Turkey-Day pies were to go into the oven. Specific area not known.

* * *

Still another aerosol topping is reported being readied for market by Kraft Foods, we are told, although again the company seems reluctant to release a confirmed story, which is understandable at this stage of proceedings. Name of the new product is "Kraft Dessert Topping," and our agent advises us that a container carrying 7½ ounces of product may retail at 39¢, which would be considerably below the price normally charged for whipped cream in a pressure container. The sample we saw appeared to be a Crown container of the regular beer-can type, carrying a Reddi-Wip valve.

* * *

We have seen several of the new glass cleaners recommended for automobile windshields, but not one yet that can conveniently be stowed away in a car's glove compartment. The one we tried was too large to stand erect, and after resting on its side for a few days leaked out through the valve in an alarming fashion. What would seem to be needed is a junior size that would stand up in a glove compartment.

* * *

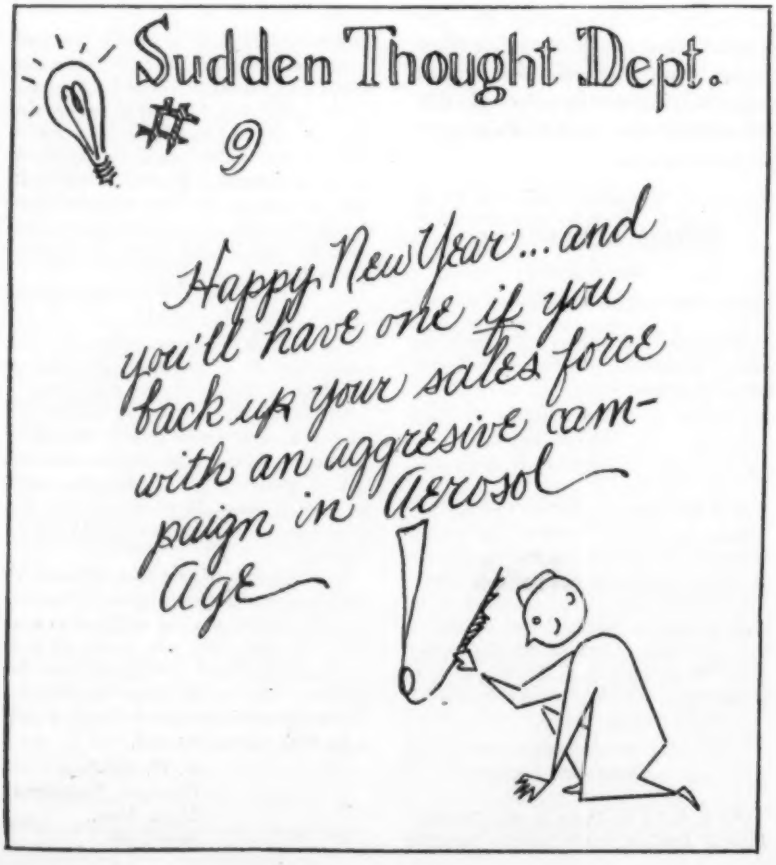
First shipment of Isotron from the new installation of Pennsalt Chemicals at Calvert City, Kentucky, was a 25-pound shipment to Stalfort Pressure-Pak Corp., Baltimore, for their laboratory.

* * *

The item appearing in this column last month inquiring about custom fillers in Mexico has brought such a flood of replies that in the February issue we shall carry a full story together with all the replies and additional information sent in by our "quick-to-notice" readers.

* * *

Smith, Kline & French Laboratories, Philadelphia, are working on an aerosol poison ivy preparation, and an aerosol calomine product, both of which are still in development stages, but show promise for commercial preparation soon.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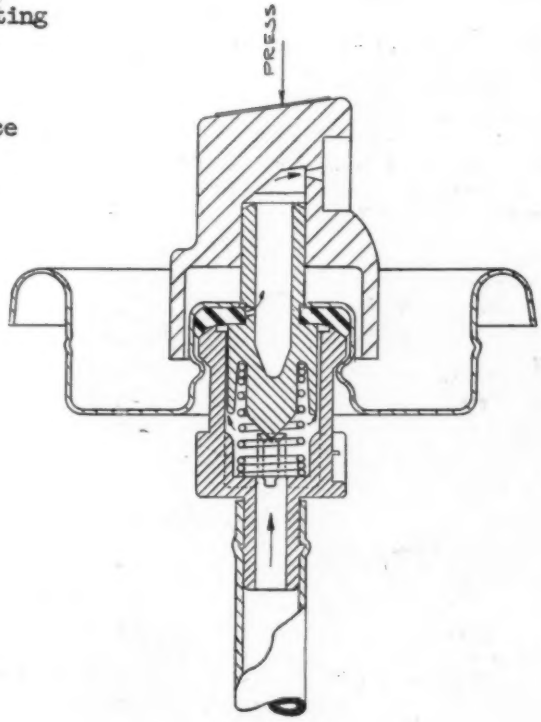

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